Rural Determinations Decennial Review

Analysis of Communities and Areas
As Assigned By
The Federal Subsistence Board

June 23, 2006

Office of Subsistence Management
3601 C Street, Suite 1030
Anchorage, AK 99503

Contents

Introduction 1
Methods 4
Overview of Community Characteristics 8
Adak 14
Prudhoe Bay 17
Fairbanks North Star Borough 20
Kenai Area 23
Seward Area 26
Wasilla Area 28
Homer Area 31
Delta Junction Vicinity 36
Kodiak Area 41
Ketchikan Area 60
Summary 73
Literature Cited 75
Appendix A 80
Appendix B 84
Appendix C 86

INTRODUCTION

The Federal Subsistence Board (Board), in its review of rural determinations, has directed staff to further analyze ten communities and areas. At its meeting in Anchorage on December 6–7, 2005, the Board reviewed a staff report (OSM 2005*a*), received recommendations from Subsistence Regional Advisory Councils (Councils), heard public testimony, and determined that additional information was needed on the following communities and areas before it proposes any potential changes:

- **Adak, Prudhoe Bay, and Kodiak:** Currently Adak is considered nonrural, while Prudhoe Bay and Kodiak are considered rural. These three communities are to be analyzed as to their rural/nonrural status. The analysis for Kodiak includes a preliminary step of evaluating the geographic area to be grouped for the purposes of the rural/nonrural analysis.

- **Fairbanks North Star Borough:** Evaluate whether to continue using the entire borough as the nonrural area, or separate some outlying areas and evaluate their rural/nonrural status independently.

- **Kenai Area:** Evaluate whether to exclude Clam Gulch, and similarly situated places, from this nonrural grouping and evaluate their rural/nonrural status independently.

- **Seward Area:** Evaluate whether to exclude Moose Pass, and similarly situated places, from this nonrural grouping and evaluate their rural/nonrural status independently.

- **Wasilla Area:** Evaluate whether to include Willow, Point MacKenzie, and similarly situated places, in this nonrural grouping.

- **Homer Area:** Evaluate whether to include Fox River, Happy Valley, and similarly situated places, in this nonrural grouping.

- **Delta Junction, Big Delta, Deltana and Fort Greely:** Evaluate whether some or all of these communities should be grouped, and their rural/nonrural status evaluated collectively.

- **Ketchikan Area:** Evaluate whether to include Saxman, and areas of growth and development outside the current nonrural boundary, and evaluate the rural/nonrural status of the entire area.

The Alaska National Interest Lands Conservation Act requires that rural Alaskans be given the priority for subsistence uses of fish and wildlife on Federal public lands. Only residents of rural communities and areas are eligible for this subsistence priority. The Board initially determined which Alaska communities and areas were rural when the Federal Subsistence Management Program began in 1990. Federal subsistence regulations require that rural/nonrural status be reviewed every 10 years, beginning with the availability of the 2000 census data.

Following an initial review completed in July 2005 (OSM 2005*b*), the Board's assessment was that the rural/nonrural status of most Alaska communities and areas should remain unchanged for

the proposed rule stage to follow in 2006. However, the Board determined at a public meeting in December 2005 that further analysis was needed for some places. That list of places assigned for further analysis in December 2005, and noted above, differs from the list proposed by the Board in July, 2005, in that: 1) the scope of the review was broadened for the Ketchikan Area, currently considered nonrural, to include an analysis of rural/nonrural characteristics of the entire area; 2) the rural/nonrural status of Prudhoe Bay was added; and 3) the Board concluded that it had received sufficient information on Sitka, and that further analysis was not necessary.

The analyses of the ten assigned communities and areas which follow in this report are arranged by type of analysis. The first two analyses, for Adak and Prudhoe Bay, address rural/nonrural status without a need to consider grouping of nearby communities. The next five analyses, for the Fairbanks North Star Borough, Kenai Area, Seward Area, Wasilla Area, and Homer Area, focus on grouping issues as assigned by the Board, with an analysis of rural/nonrural status needed only if there are communities or areas recommended for exclusion from an existing nonrural grouping. The final three analyses, for the Delta Junction vicinity, Kodiak Area, and Ketchikan Area, address grouping issues, followed by rural/nonrural analysis of the resulting grouping.

The Board is expected to develop a proposed rule in June 2006 on any potential changes to the rural/nonrural status of Alaska communities and areas. The purpose of this report is to provide the results of staff analyses assigned by the Board in December 2005. If the Board decides to hold public hearings in any potentially affected communities, that decision would likely be made in June 2006. Public comments and Council recommendations will be invited on the proposed rule. The Board is expected to take action on a final rule at a public meeting in Anchorage in December 2006.

Under Federal subsistence regulations:

- A community with a population of 2,500 or less is considered rural, unless it possesses significant characteristics of a nonrural nature or is considered to be socially and economically part of a nonrural area.

- A community with a population of more than 7,000 is considered nonrural, unless it possesses significant characteristics of a rural nature.

- A community with a population above 2,500, but not more than 7,000, is not presumed to be rural or nonrural. Community characteristics considered in an evaluation may include, but are not limited to, the diversity and development of the local economy, the use of fish and wildlife, community infrastructure, transportation, and educational institutions.

- Communities that are economically, socially, and communally integrated are to be grouped for evaluation purposes.

The comment and recommendation periods, meetings of the Board, and staff reports associated with implementation of this first decennial review of rural determinations are as follows:

- February–March 2005: Public comment and Council recommendation period on the process as it is initiated.

- July 2005: Board work session to propose a list of communities for further analysis and the review process to be used. A written staff report is presented on public comments and Council recommendations received and the initial staff review of existing rural determinations (OSM 2005*b*).

- August–October 2005: Public comment and Council recommendation period on Board-proposed list of communities for further analysis.

- December 2005: Board public meeting to decide upon an approved list of communities for further analysis. A written staff report is presented on public comments and Council recommendations received, and the staff evaluation (OSM 2005*a*).

- June 2006: Board to develop a proposed rule to solicit public comments and Council recommendations on proposed rural/nonrural status of communities in Alaska. A written staff report on the detailed staff analyses is to be provided (this report).

- August–October 2006: Public comment and Council recommendation period on proposed rule.

- December 2006: Board public meeting to approve final rule, deciding upon the rural/nonrural status of communities in Alaska. A written staff report will be provided on public comments and Council recommendations received on the proposed rule, and the staff evaluation.

Current Rural Determinations

The current status of rural determinations is that all communities and areas in Alaska are considered rural for the purposes of the Federal Subsistence Management Program, except for the following:

- Adak

- Fairbanks North Star Borough

- Homer Area—including Homer, Anchor Point, Kachemak City, and Fritz Creek

- Juneau Area—including Juneau, West Juneau, and Douglas

- Kenai Area—including Kenai, Soldotna, Sterling, Nikiski, Salamatof, Kalifornsky, Kasilof, and Clam Gulch

- Ketchikan Area — including Ketchikan City, Clover Pass, North Tongass Highway, Ketchikan East, Mountain Point, Herring Cove, Saxman East, Pennock Island, and parts of Gravina Island

- Municipality of Anchorage
- Seward Area—including Seward and Moose Pass
- Valdez
- Wasilla Area—including Palmer, Wasilla, Sutton, Big Lake, Houston, and Bodenberg Butte

METHODS

Initial Federal rural/nonrural determinations were made by the Board in December 1990, and published in the Federal Register in January 1991. The purpose of the Board's present decennial review is to consider these determinations with an emphasis on what has changed since 1990.

In 1990, a two-step methodology was developed for the making of rural determinations: grouping, then evaluation. Grouping means treating economically, socially, and communally integrated communities as a unit or area for the purposes of evaluation. The communities and areas are then categorized by population size relative to the population thresholds in the regulations of 2,500 or less and greater than 7,000, as noted in the Introduction, and evaluated by community characteristics as to their rural or nonrural status. The community characteristics listed in regulation include both quantitative and qualitative measures. No mathematical formula is used to assign weights to the various characteristics, so the Board must assess their relative importance. This flexibility allows the Board to exercise its judgment in the evaluation of circumstances unique to Alaskan communities.

Within the general public and the Federal land-managing agencies there are diverse views about how communities should be grouped, and whether communities and areas should be considered rural or nonrural for subsistence management purposes. Where the assigned staff analyses reasonably led to more than one outcome, they are reported here, providing the Board with options. In instances of multiple options, the best case is made for each option, drawing upon the information that best supports that option. It is the Board which has the authority and responsibility for making decisions in the review of rural determinations.

For five of the ten places assigned for further analysis, the Fairbanks North Star Borough, Kenai Area, Seward Area, Wasilla Area, and Homer Area, the analysis involved an evaluation of grouping issues. For two of these five, the Wasilla Area and the Homer Area, the question is whether nearby communities or areas should be included in the existing nonrural grouping. If such was the case, the communities or areas so included would take on the nonrural status of the area into which they were grouped, following a five-year delay period as specified by regulation. For the other three of these five places, the Fairbanks North Star Borough, Kenai Area, and Seward Area, the question is whether certain communities or areas should be excluded from the existing nonrural grouping. If such was the case, the rural/nonrural status of communities or areas so excluded would need to be considered independently from the grouping.

For two of the ten places assigned for further analysis, Adak and Prudhoe Bay, the further analysis involved an evaluation of community characteristics relative to rural or nonrural status, without the need to address grouping considerations, due to the isolated locations of the two communities.

For the remaining three places assigned for further analysis, the Delta Junction vicinity, Kodiak Area, and Ketchikan Area, the further analysis involved an evaluation of grouping issues, followed by evaluation of community characteristics relative to rural or nonrural status for the resulting grouping.

In the course of conducting the assigned analyses, staff made field visits to Fairbanks, the Delta Junction vicinity, Kodiak, Ketchikan, and Saxman.

Grouping Analysis

By regulation, communities that are economically, socially, and communally integrated are to be grouped together. The Board identified three guidelines or criteria for analysis to assist in its determination of whether or not to group communities in its review of rural determinations. Those criteria are: 1) Are the communities in proximity and road-accessible to one another?; 2) Do they share a common high school attendance area?; and 3) Do 30% or more of the working people commute from one community to another?

The first criterion, proximity and road accessibility, is considered a logical first step in evaluating the relationship between communities, and, applied in relation to the other two criteria, is considered a reasonable indicator of economic, social, and communal integration. This is considered an improvement over the former criterion of daily or semi-daily shopping trips being made by residents of one community to another, since objective data were not available to document such patterns among communities.

The second criterion, regarding sharing a common high school attendance area, is taken to be an indicator of the social integration of communities. This is an improvement by way of modification from the former criterion of a shared school district. It was pointed out in past public testimony to the Southcentral Council (OSM 1995) and to the Federal Subsistence Board (OSM 2000), as well as by Kruse and Hanna (1998), that attendance in a common school district often reflects political or administrative boundaries rather than social integration.

The third criterion, regarding whether working people commute from one community to another, was identified by Kruse and Hanna (1998) as providing meaningful information relating to the grouping of communities. Also, the U.S. Census uses this criterion because commuting to work is an easily understood measure that reflects social and economic integration. The criterion standard was set at 30% to be consistent with data developed by the USDA Economic Research Service (ERS 2005). Rural-urban commuting area (RUCA) codes are developed at the zip code level nationally using the 30% commuting standard. This approach makes use of a widely recognized measure.

Initially, it was thought that the RUCA codes assigned by zip codes could be relied upon to evaluate the commuting patterns of interest. However, in the course of conducting the assigned analytical work it was learned that Alaska is one of the few places where more than one zip code is contained in a census tract. After downloading additional census data relating to the "journey to work" questions, it was realized that information with greater specificity would be needed about where workers were commuting.

The required data for specific communities and areas in Alaska was extracted from a database provided by the USDA Economic Research Service in Washington, D.C. (ERS 2006). That database is a special tabulation product based on estimates of place of residence and place of work for workers derived from the long form census questionnaire. In the documentation that accompanied the database it was noted that the estimates were rounded, and that place of work allocations were imputed when data were missing (ERS 2006).

Rural/Nonrural Analysis

In support of Board deliberations on initial rural and nonrural determinations in 1990, a table was developed that presented indicator characteristics for a set of communities and areas that ranged in population size and geographic location. In evaluating community characteristics in the current decennial review, that information was updated with current statistics for communities and areas not presently under further analysis for rural/nonrural status (**Appendix A**). The nonrural communities and areas in this updated information set are the Municipality of Anchorage, Fairbanks North Star Borough, Wasilla Area, Kenai Area, Juneau Area, Homer Area, Seward Area, and Valdez. The rural places in this updated information set are Sitka, Bethel, Barrow, Nome, Petersburg, Kotzebue, Dillingham, Cordova, Wrangell, Ninilchik, Cooper Landing, Whittier, and Hope. Sitka has a population greater than 7,000, but was determined by the Board to be rural based on community characteristics. Although some of the areas are under further analysis for grouping issues, it was thought beneficial to carry them forward in the community characteristics information set, in order to maintain a sufficiently broad comparison. The community characteristics table from the 1990 rural determination process is provided in **Appendix B** for historical perspective.

Community characteristics and specific indicators included in the comparisons (**Appendix A**) were: 1) Economy—wage employment, percent unemployment, per capita income, diversity of services, cost-of-food index, and number of stores of large national retailers (the latter being a new indicator, which is further defined below); 2) Community Infrastructure—average cost of electricity, in dollars per kilowatt-hour; 3) Fish and Wildlife Use—variety of species used per household, percent of households participating, level of average harvest in pounds per capita for all subsistence resources combined, and level of average harvest in pounds per capita for salmon and large land mammals only (the latter being a new indicator, which is further discussed below); 4) Transportation—variety of means, predominant means, and road system in miles; and 5) Educational Institutions—listing levels of educational institutions available in the community. It should be noted that for those areas comprised of a grouping of communities or areas, data on these characteristics were averaged, where available, in a weighted manner, so as to best represent the overall grouping.

The regulations call for the use of U.S. Census data as updated by the Alaska Department of Labor. Population estimates for 2000 from the U.S. Census, and population estimates for 2005 from the Alaska Department of Labor, are both reported in **Appendix A**. Other community characteristics are reported for the most current year available.

The number of stores of large national retailers in a community or area is a new indicator being included in the category of economy for this decennial review. This indicator is the sum of the number of Costco, Wal-Mart, Sam's Club, Fred Meyer, Home Depot, and Lowe's stores in a community or area as of December 2005.

The per capita harvest of only salmon and large land mammals is a new indicator being included in the category of fish and wildlife use for this decennial review. The purpose of this more limited measure is to provide a more standardized index for comparing harvest levels across rural and nonrural communities, although there remain limitations. Comprehensive household subsistence harvest and use surveys have been conducted in many rural communities, but less commonly in nonrural areas. Harvest permits are required for the take of some species, such as salmon and large land mammals, in various fisheries and hunts. Wolfe (2000) reported per capita subsistence harvest levels for key communities and areas across the state, including estimates for five nonrural areas of interest in this comparative analysis (Anchorage, Fairbanks, Wasilla, Juneau, and Ketchikan). These latter were based on harvest permit reports. Extracting the salmon and large land mammal information from the household surveys available for other communities of interest, as is done here, is an attempt to provide a more direct comparison across communities.

It should be noted that the resulting comparisons still have limitations, and neither the harvest permit report data nor the household survey data extracted for a subset of species, are meant to fully characterize communities as to their harvest patterns or rural/nonrural status. Permit reporting compliance is not complete, and the level of compliance in reporting is probably uneven among communities. Even if compliance were complete, not all hunts and fisheries require permit reports. Household survey data, used where available, is widely regarded as a more complete measure of harvest and use patterns, even when the scope of resources being compared is limited as it is with this indicator. Also, salmon and large land mammals are resources that are not uniformly available throughout the state. The measure used in the initial rural determinations in 1990, which includes all subsistence resources harvested, is also reported here, in order to give a complete description of subsistence harvest levels for those communities where it is available. The term "subsistence harvest" in this context includes harvest of resources under various regulations (e.g. subsistence, personal use, commercial, sport, etc.) for personal and family consumption.

Wolfe and Fischer (2003*a*) calculated population densities for many places in Alaska using 2000 census data in the course of examining potential methods for evaluating rural/nonrural status for purposes of Federal subsistence management. Although the overall approaches to rural determinations advanced by Wolfe and Fischer (2003*a*) are not being employed in this decennial review, the population densities can be used as yet another characteristic in the description of communities under the current regulations.

Population densities calculated by Wolfe and Fischer (2003*a*) were based on census tracts or census designated places (CDPs), not at the level of areas as defined in the Federal Subsistence Management Program. For a complex grouping, such as the Wasilla Area, there are many census units involved. In such cases, the population density for only one of the census units was used here. To be consistent, a unit with a density on the high end for that grouping was selected. For example, for the Wasilla Area, the Lakes CDP, with a reported population density of 4.54, was used, whereas among the several other census units in the grouping, the Wasilla CDP had a density of 3.86, and the Palmer CDP had a density of 3.58. More detail on how population densities were calculated by Wolfe and Fischer (2003*a*) and are being applied here is provided in **Appendix C**.

Combined Analyses

The method employed for the combined grouping and rural/nonrural analyses was consistent with the methods described above. First, the assigned grouping issues were addressed by applying the grouping criteria, and then rural/nonrural status of the grouping was evaluated using community characteristics.

OVERVIEW OF COMMUNITY CHARACTERISTICS

Figures 1–9 depict selected characteristics for communities and areas as detailed in **Appendix A**. Each of these graphs portrays updated information for the nonrural communities or areas, for the rural communities, and for communities or areas under further analysis for rural/nonrural status (Ketchikan Area/Saxman, Kodiak Area, Delta Junction Area, Adak, and Prudhoe Bay). Within each of these three sets, the communities or areas are sequenced from largest to smallest in population, using the 2005 estimates. Because of the prior history of regarding the Ketchikan Area and Saxman as separate communities, characteristics are displayed for each separately on these graphs. In 1990, the Ketchikan Area and Saxman had initially been proposed as a unified nonrural area, but they were determined by the Board to be separate with differing rural/nonrural status in the final rule stage. Given this past history, community characteristics are provided in Appendix A for the Ketchikan Area and for Saxman separately, without intent to prejudice the decision on grouping and status in the present review.

A few overall observations will be made here about the patterns in the data for the nonrural and rural communities not under further analysis for rural/nonrural status. Characteristics of communities under analysis for rural/nonrural status will be addressed in subsequent sections of this report.

Population size (**Figure 1**) is the starting point for rural classifications, so it should be no surprise that a pattern appears, with nonrural communities and areas being more populous, and rural communities being less populous.

There is substantial overlap in the levels of percent unemployment (**Figure 2**) and per capita income (**Figure 3**) between nonrural and rural communities. However, the lowest percent unemployment was found in a nonrural place (Juneau, 5.3%), and the highest in a rural place

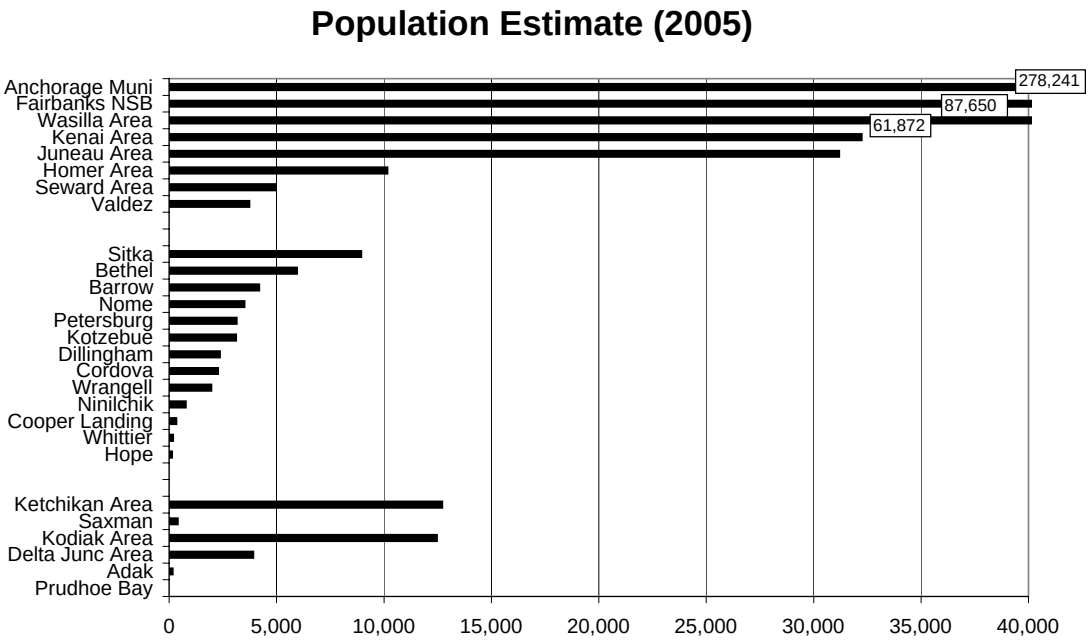


Figure 1. Population estimates for 2005 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

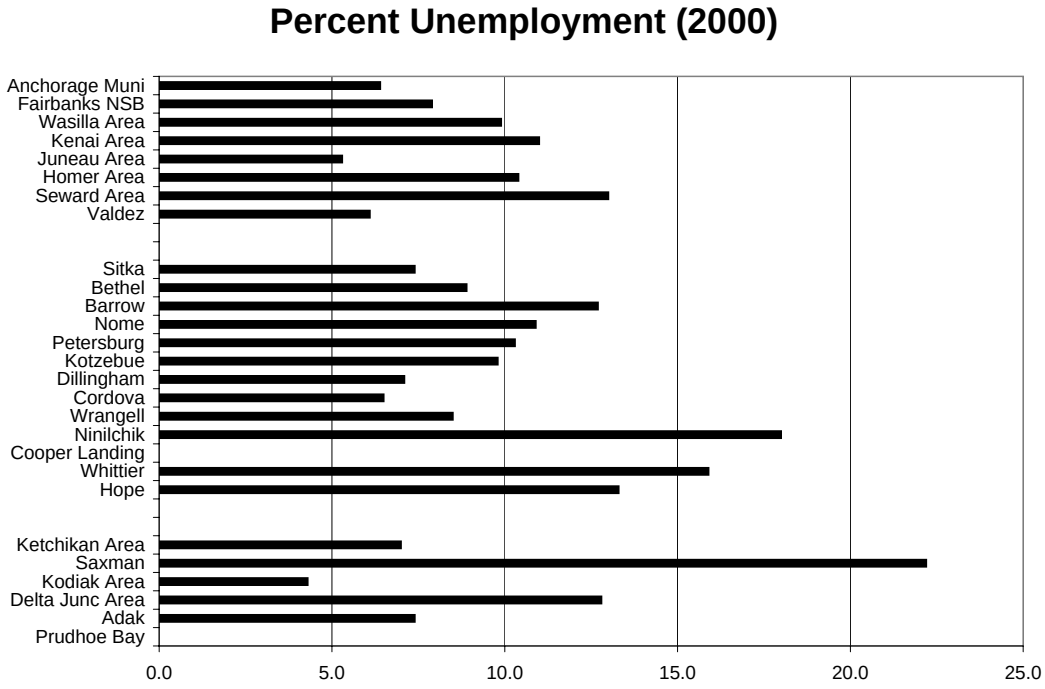


Figure 2. Percent unemployment estimates for 2000 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/ nonrural analysis (bottom), using data from Appendix A.

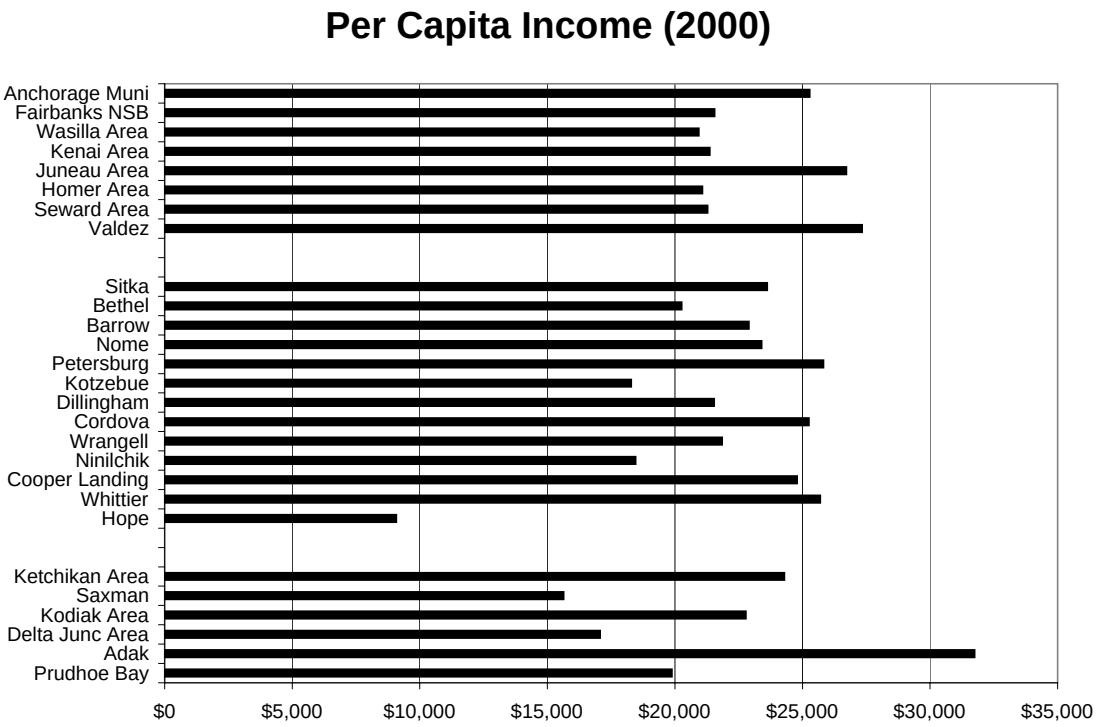


Figure 3. Per capita income estimates for 2000 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

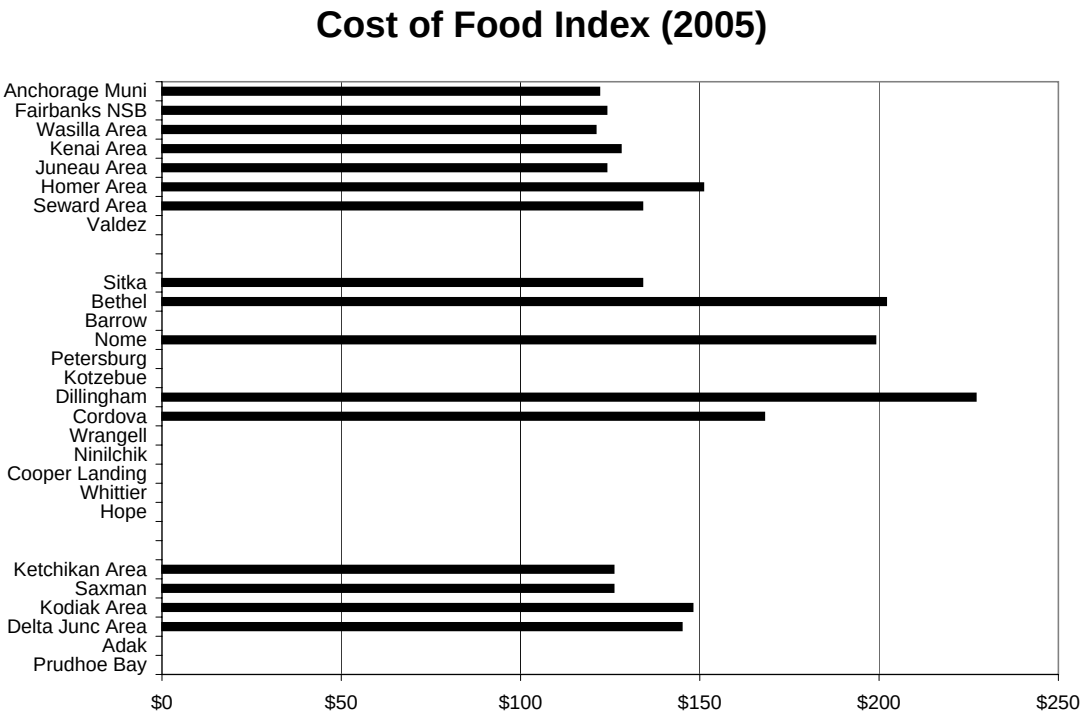


Figure 4. Cost of food index estimates for 2005 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

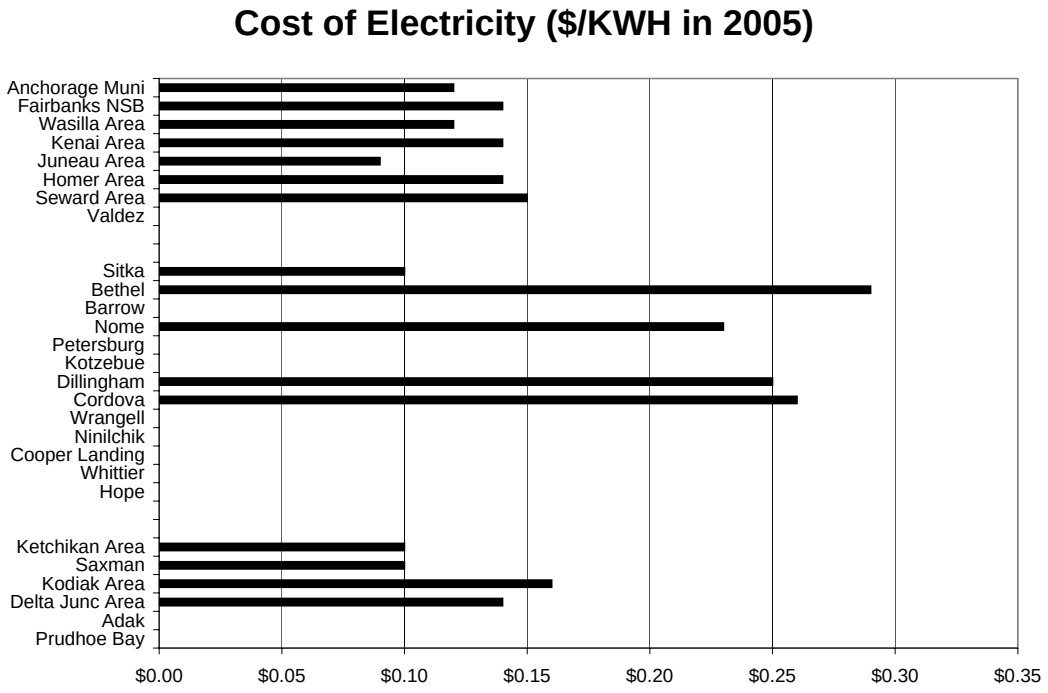


Figure 5. Cost of electricity estimates for 2005 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

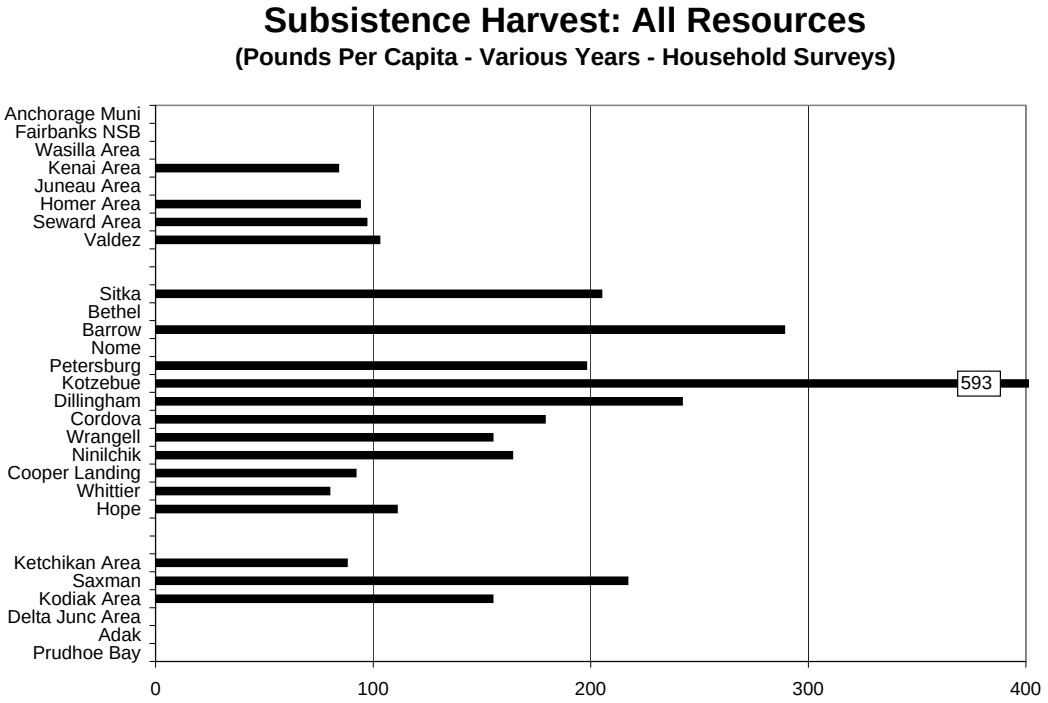


Figure 6. Subsistence harvest of all resources in pounds per capita, various years, for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

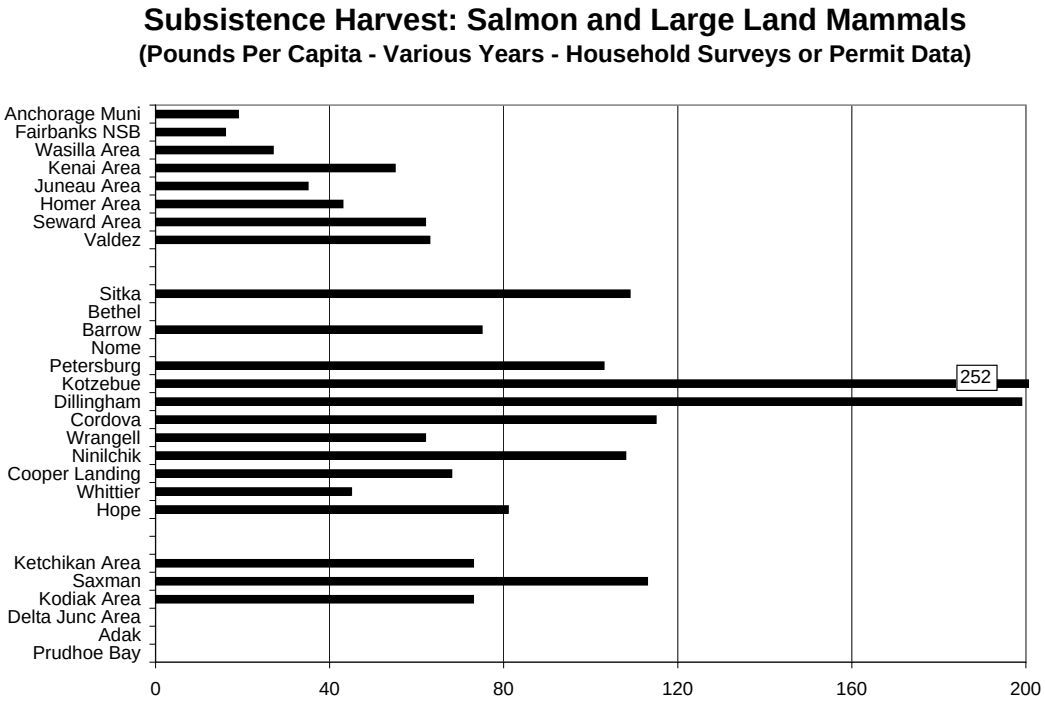


Figure 7. Subsistence harvest of salmon and large land mammals in pounds per capita, various years, for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

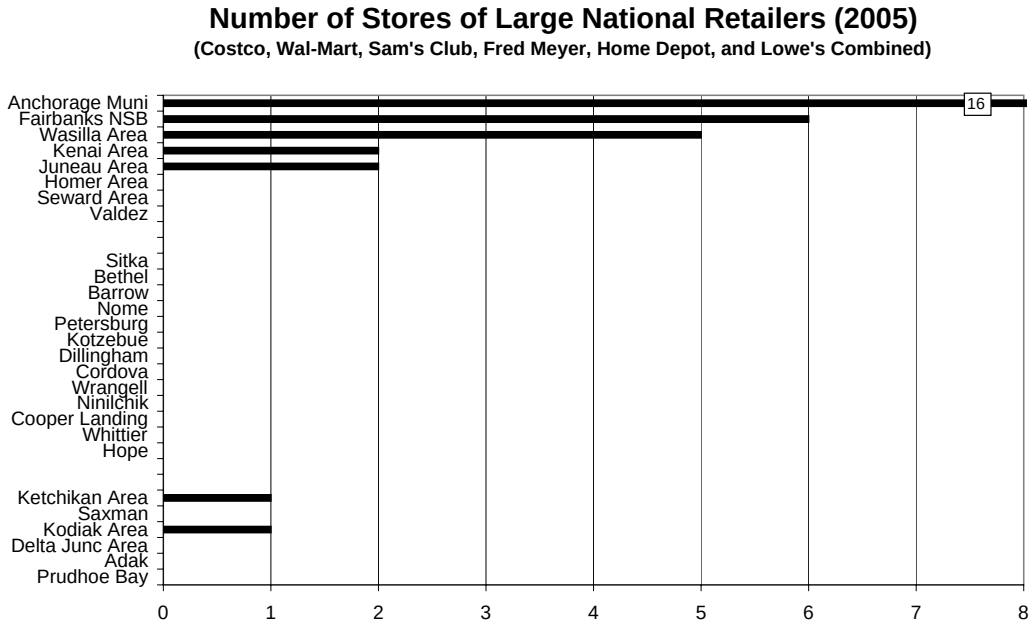


Figure 8. Number of stores of large national retailers (as defined) in 2005 for nonrural communities and areas (top), for rural communities (middle), and for communities and areas under further rural/nonrural analysis (bottom), using data from Appendix A.

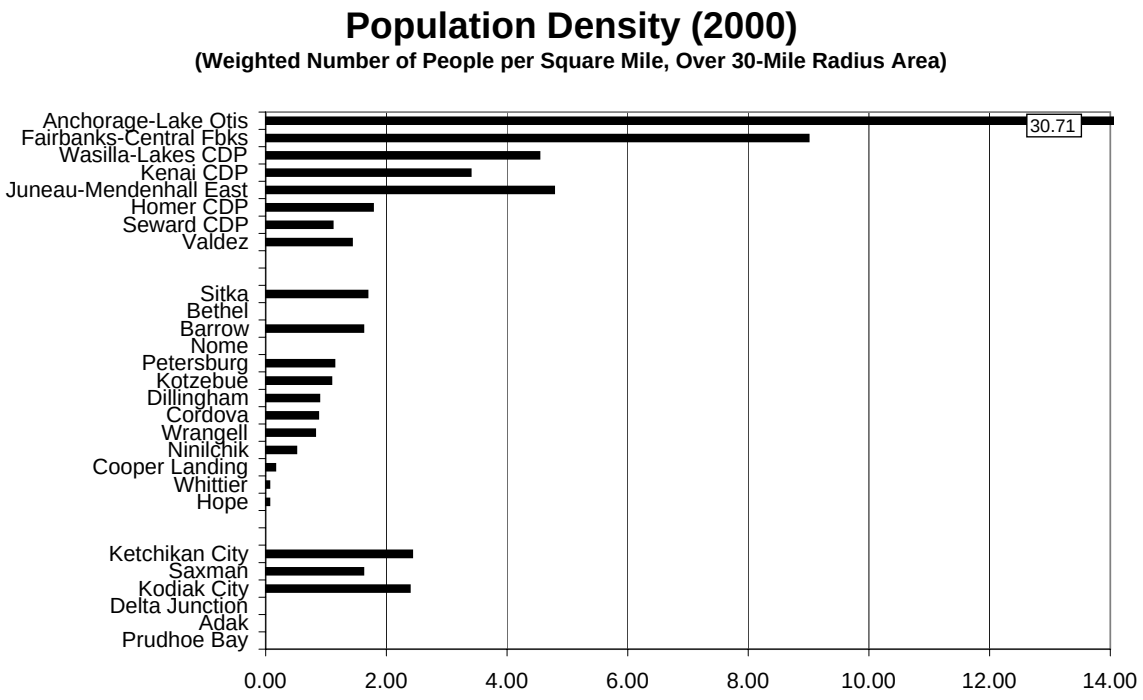


Figure 9. Population density estimates for 2000 for nonrural places (top), for rural places (middle), and for places under further rural/nonrural analysis (bottom), using data from Wolfe and Fischer (2003*a*) as detailed in Appendix C.

(Ninilchik, 18.0%), while the highest per capita income was found in a nonrural place (Valdez, $27,341), and the lowest in a rural place (Hope, $9,079).

Cost of food (**Figure 4**) and cost of electricity (**Figure 5**) were higher in the rural communities than in the nonrural, with the exception of Sitka. The lower cost of electricity in Sitka is due to a local hydroelectric source.

Subsistence per capita harvest of all resources (**Figure 6**) shows a pattern of increasing amount with decreasing population size among nonrural areas, and typically higher levels in rural communities. Household survey data are not available for four (half) of the nonrural areas, and for two (15%) of the rural communities. For some of the rural communities, such as Whittier, Cooper Landing, and Hope, per capita harvest levels are similar to the levels in some of the smaller nonrural areas, such as Valdez, Seward Area, and Homer Area.

Turning to the newly introduced indicators, the per capita harvest of salmon and large land mammals (**Figure 7**) also shows a general pattern of increasing amount with decreasing population size among nonrural areas, and typically higher levels in rural communities. This limited measure of subsistence harvests includes more nonrural areas than the above-noted assessment, by relying on harvest permit information where household survey data are not available. As was noted previously, the purpose of this more limited measure is to provide a more standardized index for comparing harvest levels across rural and nonrural communities. The higher level than might be expected for the Kenai Area, among the nonrural places, and for Dillingham, among the rural

places, is likely due to the high use of salmon in those places. The high harvest level estimated for Kotzebue is likely due in part to access to the Western Arctic caribou herd. As noted for the above assessment, for some of the rural communities, such as Whittier, harvest levels are similar to the levels in some of the smaller nonrural areas, such as Valdez and the Seward Area.

There were no large national retailers, as defined in the Methods section, found in the rural communities, or in the three smallest nonrural communities or areas (Homer, Seward, and Valdez), but there were from 2 in each of the Juneau Area and the Kenai Area to 16 in the Municipality of Anchorage among the other nonrural places being compared (**Figure 8**).

Population density, the other newly introduced indicator, was higher for most nonrural places than it was for rural places, although there was some overlap (**Figure 9** and **Appendix C**). Among the nonrural locations, population density ranged from 1.11 for the Seward CDP to 30.71 for Anchorage-Lake Otis, while among the rural places it ranged from 0.06 for Hope and Whittier to 1.69 for Sitka. The pattern of the range of population densities for the nonrural and rural places (**Figure 9**) parallels the pattern of population sizes for the communities and areas (**Figure 1**), with some exceptions, such as the relatively higher density for the Juneau-Mendenhall East location.

ADAK

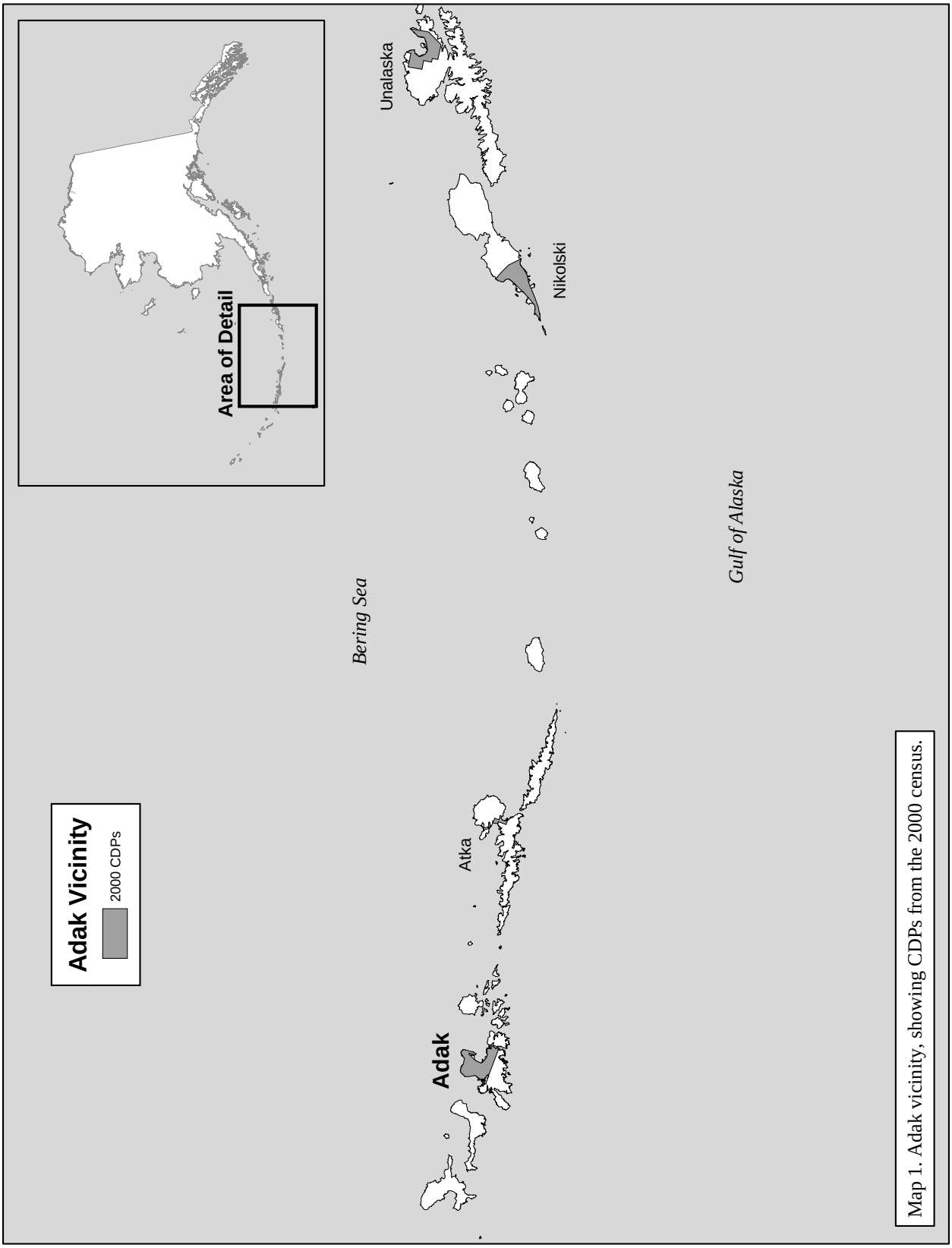
Background

The Board recommended that Adak be analyzed to determine if the status should be changed from nonrural to rural. The Board noted that the change from a U.S. military station with a population of over 4,000 people in 1990 to a community with just over 300 people in 2000 merits reconsideration of its nonrural status based on a decrease in the population.

Location and Transportation

Adak (formally Adak Station) is located on Kuluk Bay on Adak Island in the Andreanof Islands group of the Aleutians Islands (**Map 1**). The island community of Adak is located 1,300 miles southwest of Anchorage and 350 miles west of Unalaska/Dutch Harbor, in the Aleutian Chain. Flight time to Anchorage is three hours. Adak is the southern-most community in Alaska and is located at the same latitude as Vancouver Island in British Columbia, Canada (ADCA 2006).

Adak is served daily by multiple commercial and cargo jet air services including Alaska Airlines and PenAir. Flying commercially to Adak is expensive. A round trip ticket from Anchorage is priced at approximately $840 (Alaska Airlines 2006). The Adak airport has a control tower and two asphalt paved runways. Despite the pullout of the Navy, the City of Adak continues to maintain three deep-water docks and fueling facilities. Recently the city requested funding to expand the Sweeper Cove small boat harbor, including a new breakwater, a 315 foot dock and new moorage floats. Adak Island includes approximately 16 miles of paved roads and other gravel roads (ADCA 2006).



Map 1. Adak vicinity, showing CDPs from the 2000 census.

History and Demographics

Historically the Aleutians were inhabited by the Unangas. Prior to the 1800s, the island was heavily populated, but was eventually abandoned in the early 1800s; Aleutian hunters followed the Russian fur trade eastward when famine set in on the Andreanof Island group. Until World War II broke out, the Unangas continued to hunt and fish around the island. After the war, Adak was built up as a Naval air station and played an important role during the Cold War as a submarine surveillance center. At its peak, 6,000 Naval personnel and their families inhabited the station. In 1994, severe cutbacks occurred and family housing and schools were closed. By 1997, the station was officially closed. In 1998, approximately 30 families with children relocated to Adak and a school was reopened.

During the Naval air station's operations on Adak, the U.S. Navy developed outstanding facilities and recreational opportunities, including a movie theater, roller-skating rink, swimming pools, bowling alleys, skeet range, auto hobby shop, photo lab, and racquetball and tennis courts. In 1990, a new $18 million hospital was opened. Currently Adak's facilities consist of a post office, school, liquor store/bar, grocery store/cafeteria, and clinic (Swetzof 2006, pers. comm.).

As of the 2000 census, there were 316 people residing in Adak. Adak's population has taken a dramatic downturn from its 1990 population, which was 4,633. The population continues to decrease, with the 2005 population estimated at 167 (**Appendix A**). In 2000, the median household income was $52,727, per capita income was $31,747, and 5% of residents were living below poverty level. U.S. Census data for the year 2000 showed 200 residents as employed. The unemployment rate at that time was 7.4%, although 16% of all adults were not in the work force. During the 2000 census, the total number of housing units numbered 884 and vacant housing units numbered 725 (U. S. Census 2000; Wikipedia 2006).

It should be noted that although Adak will provide the support base for the Sea-Based X-Band radar system, this platform will not significantly alter the population of Adak. It is anticipated that this system will be continuously monitored by a staff of 70 persons (Duskin 2006, pers. comm.).

Economy and Education

A land exchange between the Aleut Corporation, the U.S. Navy, and the Department of the Interior has transferred most of the naval facilities to the Aleut Corp. A portion of the island remains within the Alaska Maritime National Wildlife Refuge, managed by the U.S. Fish and Wildlife Service. Adak currently provides a fueling port and crew transfer facility for foreign fishing fleets—an airport, docks, and housing facilities. Norquest-Adak Seafood Co. processes Pacific cod, pollock, mackerel, halibut, albacore, and brown king crab (ADCA 2006).

There is one K–12 school located in Adak with an enrollment of 18 students.

Infrastructure

Water is derived from Lake Bonnie Rose, Lake De Maria, and Nurses Creek, stored in seven water tanks throughout the community, and piped to facilities and housing units. There is a landfill. Adak Medical Center provides qualified emergency care and primary health care. The clinic is staffed by a physician's assistant, and provides emergency care, family practice, and referral services. Emergency services have coastal and airport access to Adak. An estimate of the cost of electricity was unavailable (ADCA 2006).

Use of Fish and Wildlife

Prior to 1988, the noncommercial salmon net fishery at Adak was classified as a subsistence fishery. Beginning in 1988, this fishery operated as a personal use fishery. The Alaska Board of Fisheries reclassified it again as a subsistence fishery beginning in 1998. Six subsistence salmon permits were issued for the Adak District in 2003. The estimated total harvest was 338 salmon. This was an increase of over 50% from the 150 salmon harvested in 2002. For the period 1988 to 1993, during which the navy base operated at Adak, an average of about 49 personal use permits were issued annually. The average total annual harvest during that period was 611 salmon (ADF&G 2003:109).

Recommendation

Rural

Adak has undergone substantial change that warrants a change in status from nonrural to rural. Specifically: 1) The population of Adak decreased by 94% from 1990 to 2000; 2) Adak's population is well below the presumptive rural 2,500 population threshold and its population continues to decrease, with the estimate for 2005 being 167 people; 3) Adak is an extremely remote island community only accessible by boat and plane, with the nearest community (Atka) 169 miles away; and 4) other than high school students living in Adak, there are no students from other locations attending high school in Adak. With the changes that have occurred since the 1990s, Adak now has rural characteristics typical of a small isolated community.

PRUDHOE BAY

Background

The North Slope Subsistence Regional Advisory Council recommended that Prudhoe Bay be analyzed to determine if the status should be changed from rural to nonrural. The Council noted that Prudhoe Bay is an oil-industry enclave and as such does not have the characteristics of a rural community. The Council became more concerned with Prudhoe Bay's rural designation a few years ago when an individual claimed residency in Prudhoe Bay and requested a positive customary and traditional use determination for muskox in Unit 26C.

Location and Transportation

Prudhoe Bay, located east of Nuiqsut and west of the Canadian border on the Beaufort Sea in the northernmost waters of Alaska on the North Slope, is the site of an industrial enclave built for the sole purpose of extracting oil. The primary means for the public to travel to Prudhoe Bay is by daily air service to nearby Deadhorse. The Dalton Highway is used year-round by trucks to haul cargo to Prudhoe Bay, although there are no services beyond Wiseman (ADCA 2006).

Local Alaskans often refer to "Deadhorse" when referring to Prudhoe Bay. The terms are used interchangeably, but Deadhorse is the name of the area where services are available. Prudhoe Bay is the official name of the community. For example, Deadhorse is not listed as a community in the "Alaska Database Community Information Summaries" (ADCA 2006), but is parenthetically referred to in the description of the community Prudhoe Bay. Another example is Alaska Airlines' reference to flights to "Prudhoe Bay/Deadhorse." The post office, two hotels, and the general store are in the area referred to as Deadhorse. This analysis uses the official term "Prudhoe Bay," with the understanding that Deadhorse is a part of Prudhoe Bay.

History and Demographics

Prudhoe Bay, as a geographic feature, was named in 1828. Exploration for oil began in the late 1960s; Prudhoe Bay was extensively developed for oil drilling operations in the 1970s. The 800-mile Trans-Alaska Pipeline transports crude oil from Prudhoe Bay to Valdez, where it is shipped in marine tankers to terminals throughout the U.S. The pipeline has a maximum capacity of two million barrels of crude oil per day. Valdez, the southern terminus of the pipeline, is classified nonrural in the Federal Subsistence Management Program.

Prudhoe Bay oil fields employ more than 5,000 individuals in drilling, pipeline operations, cargo transportation and a variety of support positions. Oil field workers travel home to Anchorage, other locations in Alaska, or the lower 48 states when off duty. As a work site, oil drilling is the focus of activity. None of the people in Prudhoe Bay, with the exception of one family reported in the 2000 U.S. Census, live permanently in Prudhoe Bay. The employees work for oil drilling or oil-support companies, and work long consecutive shifts (U.S. Census 2000, ADCA 2006).

In the 2000 U.S. census, the permanent population of the census designated place, Prudhoe Bay, was five. The Prudhoe Bay CDP encompasses Deadhorse and the surrounding area of Prudhoe Bay. All five of the permanent residents lived in one household, consisting of a married couple between the ages of 25 and 44 and three children under the age of 18. Both adults were employed. The estimate for the permanent population of Prudhoe Bay in 2005 was two (ADCA 2006), but a postal service worker at the Prudhoe Bay post office reported that there are currently no permanent residents in Prudhoe Bay (Armstrong 2006*a*). There are no vacant houses in Prudhoe Bay (U.S. Census 2000, Wikipedia 2006).

Economy and Education

In 2000, the median household income (but in this case, only one household) was $90,957, per capita income was $19,880, and 0 percent of residents were living below the poverty level. Both

adult members of the one permanent household worked (**Appendix A**; ADCA 2006). In 2006, there are no permanent residents in Prudhoe Bay (Armstrong 2006*a*).

There is no information regarding the cost of food. The oil-field workers are fed at company cafeterias. There is a general store where essential items such as toiletries, snacks, basic work clothing and Arctic survival gear, sunglasses, and gifts can be purchased (ADCA 2006; Colville Inc. 2006).

There are no schools in Prudhoe Bay.

Infrastructure

The Prudhoe Bay enclave encompasses a 384-square-mile area containing oil production facilities, operations facilities, support services, and living quarters for workers in the North Slope and Prudhoe Bay oil fields. The enclave is geographically isolated from other communities on the North Slope and does not depend upon them or the North Slope Borough for provision of services. All essential services, including utilities, medical services, fire protection, housing and recreational facilities, are provided within the Prudhoe Bay enclave (ADCA 2006, MMS 1978). Electricity is provided by TDX Power. The cost of electricity was unavailable (ADCA 2006). With the exception of a State Trooper located at the Deadhorse Airport, police and security services are also provided by oil companies. Prudhoe Bay is organized solely for onshore oil operations on the North Slope, and it therefore does not have the social and governmental institutions typically associated with communities (ADCA 2006, MMS 1978).

There are no public entertainment places, grocery stores, banks, ATM machines, churches, nor businesses of any kind other than the two basic hotels, a hardware store, and the general store, which are clustered by the airport in Deadhorse (Wikipedia 2006). There is a U.S. post office (Binnendijk 2006).

Use of Fish and Wildlife

Harvest of subsistence resources has never been reported by Prudhoe Bay residents (ADF&G 2001); in 2006 there were reportedly no permanent residents in Prudhoe Bay (Armstrong 2006*a*). The entire Prudhoe Bay area is closed to hunting (ADF&G 2005:105). Ammunitions and firearms are forbidden in Prudhoe Bay (Colville Inc. 2006). There is no indication that subsistence is a characteristic of Prudhoe Bay.

Recommendation

Nonrural

Despite the extremely small size of Prudhoe Bay—in 2000, there was only one permanent household comprised of five people and in February, 2006, there were reportedly no permanent residents—Prudhoe Bay has none of the characteristics typical of a rural community. Prudhoe Bay is an industrial enclave built for the sole purpose of extracting oil. The oil companies provide everything employees need: lodging, food, health care, and recreation. The thousands of people in Prudhoe Bay do not live there permanently, but work multi week-long shifts. They eat

in cafeterias and live in group quarters. There are no schools, grocery stores, or churches. Subsistence is not a part of the way of life. Hunting in the area and possession of firearms and ammunition are forbidden. Based on its enclave characteristics, Prudhoe Bay should be determined to be nonrural. Valdez, at the southern terminus of the pipeline, has been classified nonrural in the Federal Subsistence Management Program.

FAIRBANKS NORTH STAR BOROUGH

The area under consideration in this analysis is the Fairbanks North Star Borough (**Map 2**). The Fairbanks North Star Borough is used by the Federal Subsistence Management Program as the boundary for the Fairbanks nonrural area. There are eleven CDPs within the borough, all of which are connected to the road system: 1) Ester, 2) College, 3) Fox, 4) City of Fairbanks, 5) North Pole, 6) Two Rivers, 7) Pleasant Valley, 8) Moose Creek, 9) Eielson Air Force Base, 10) Salcha, and 11) Harding-Birch Lakes. The area of the borough not included in one of these CDPs will be termed the "Remainder," and a significant number of people are included in the Remainder.

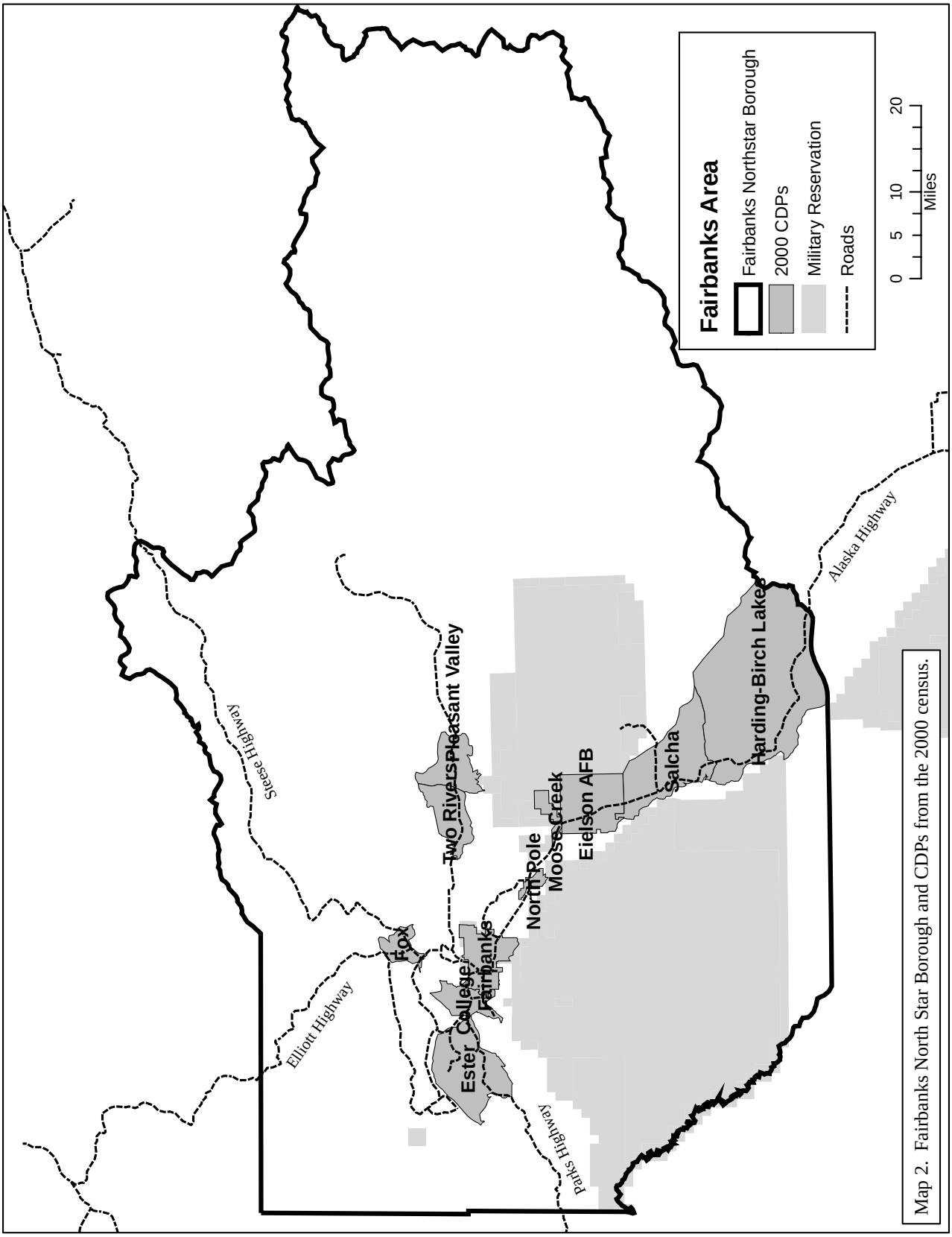
Should the entire Fairbanks North Star Borough continue to be grouped as the nonrural area, or should some outlying places be separated out to evaluate their rural/nonrural status independently?

1) Are the CDPs and Remainder in proximity and road-accessible to one another?

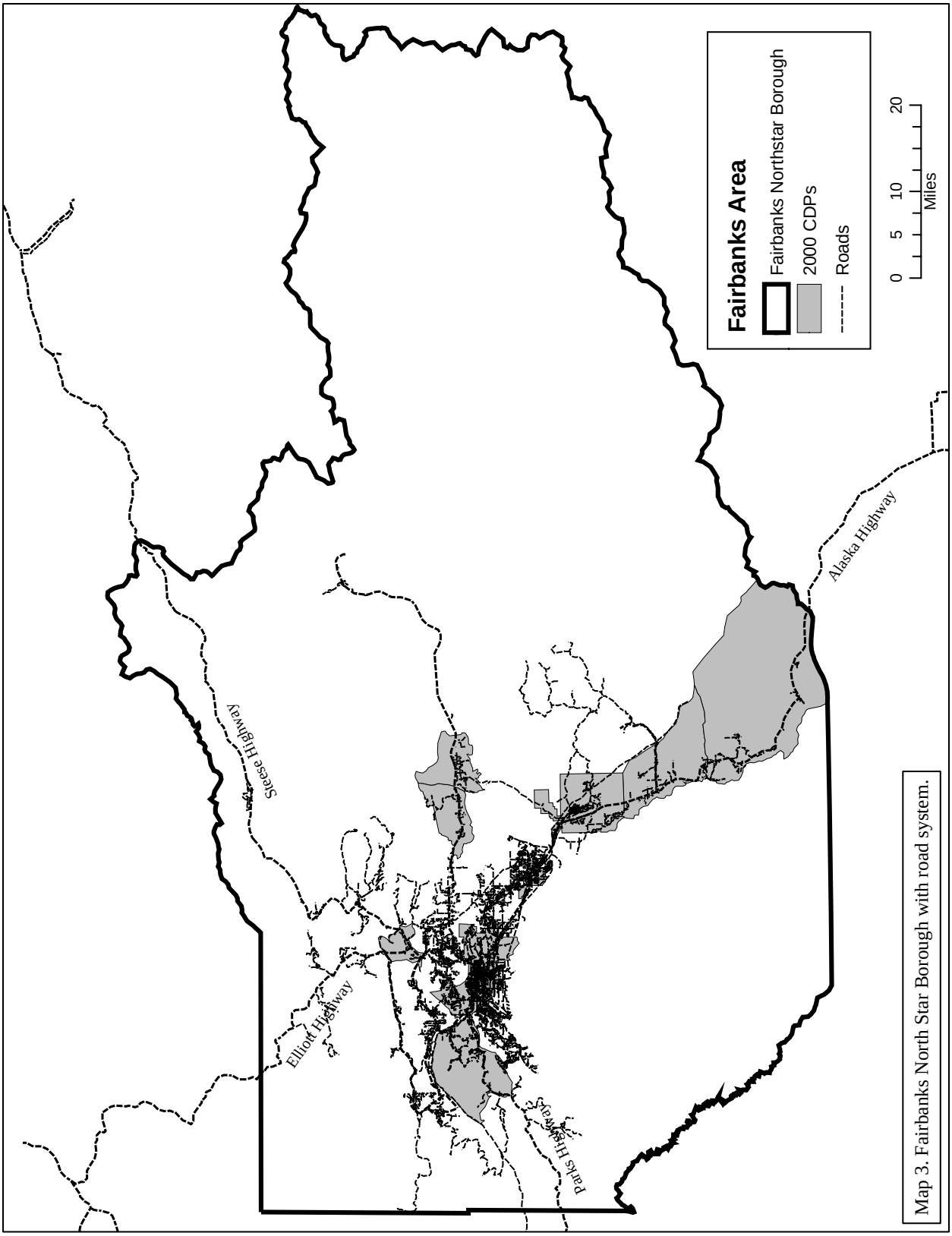
All the CDPs in the Fairbanks North Star Borough are road connected, as are parts of the Remainder area as well, including Fort Wainwright. The City of Fairbanks is located 357 miles north of Anchorage. College lies 3 miles northwest of Fairbanks at mile 467 of the Alaska Railroad. Ester is located 9 miles west of Fairbanks on the George Parks Highway. The community of Fox resides on the right bank of Fox Creek as it enters Goldstream Creek Valley, 10 miles northeast of Fairbanks at the juncture of the Steese and Dalton Highways. North Pole is 14 miles southeast of Fairbanks on the Richardson Highway. Two Rivers is spread out from mile 13 to mile 25 of the Chena Hot Springs Road between the Chena and the Little Chena Rivers. Pleasant Valley is located east of Fox and Two Rivers. Moose Creek is located along the Richardson Highway, six miles south of the City of North Pole. Eielson Air Force Base is 26 miles south of Fairbanks, off of the Richardson Highway, near the City of North Pole east of the Tanana River. Salcha is located at the mouth of the Salcha River, 33 miles southeast of Fairbanks on the Richardson Highway. Harding-Birch Lakes is situated 4 miles southeast of the confluence of the Salcha and Tanana Rivers, 38 miles northwest of Big Delta. Most of the people living in the remainder areas are located on the road system (ADCA 2006, **Map 3**).

2) Do they share a common high school attendance area?

Of the six public high schools operating in the Fairbanks North Star Borough, four are located in the City of Fairbanks, one is located in North Pole, and one at Eielson Air Force Base. There are no high schools in Ester, Fox, Pleasant Valley, Harding, Moose Creek, College, Two Rivers, Salcha, or Harding-Birch Lakes (ADCA 2006). The majority of the high school students residing in Ester, Fox, Pleasant Valley, Harding, and Moose Creek attend the four public high schools in



Map 2. Fairbanks North Star Borough and CDPs from the 2000 census.



Map 3. Fairbanks North Star Borough with road system.

the City of Fairbanks. The Ben Eielson Jr./Sr. High School, located at the Eielson Air Force base, is attended by high school students primarily from Eielson, Salcha and Harding-Birch Lakes (Salcha School Official 2006, pers. comm.). The majority of high school students residing in North Pole attend their local public high school. However, it should be noted that in addition to the six public high schools operating in the Fairbanks North Star Borough, there are four private high schools located in the City of Fairbanks and two in North Pole (Beland 2006, pers. comm.).

3) Do 30% or more of the working people commute from one CDP to another?

Seventy-five percent of the workers living in Harding-Birch Lakes, the furthest-removed CDP to the southeast, commute to the City of Fairbanks for employment (ERS 2006). Their average travel time to work is 63 minutes (U.S. Census 2000). Seventy-one percent of the workers living in Pleasant Valley, the furthest-removed CDP to the east, commute to the City of Fairbanks. Pleasant Valley commuter's average travel time is 35 minutes. Fifty-seven percent of the workers residing outside of designated CDPs in the Remainder area commute to the City of Fairbanks for employment.

Recommendation

Maintain Current Nonrural Boundary

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the current nonrural boundary of the Fairbanks Area should continue to be defined as the Fairbanks North Star Borough boundary. No CDPs should be excluded from the nonrural grouping for the following reasons: 1) All CDPs are road accessible to one another. Although the Harding-Birch Lakes and Salcha areas are more sparsely populated than central areas of the borough, both communities include many occasional use homes owned by Fairbanks residents. The Harding Lake area is primarily a summer recreation site for Fairbanks residents (ADCA 2006; Craver 2006). Further, both places are home to only a few year-round residents. 2) The majority of the Borough's high school students are bused to one of the schools located in Fairbanks, North Pole, or Eielson. 3) The Remainder area of the North Star Borough should be included in the grouping because the majority of the population is road connected and over half (57%) of the workers residing in this area commute to Fairbanks for employment. Additionally, 75% of the workers living in Harding–Birch Lakes drive to the City of Fairbanks to work, and 71% of the working population in Pleasant Valley commute to the City of Fairbanks.

KENAI AREA

The Kenai Area grouping currently consists of the cities of Kenai and Soldotna, and the following CDPs: Nikiski, Salamatof, Kalifornsky, Kasilof, Cohoe, Ridgeway, Sterling, Funny River, and Clam Gulch.

Should Clam Gulch and similarly situated places be excluded from the Kenai Area grouping?

The Clam Gulch and Cohoe CDPs were reviewed as to their continued inclusion in the Kenai Area. The Sterling CDP was evaluated to determine if the boundaries of the Kenai Area should be adjusted to include the additional area of the 2000 CDP within the Kenai Area grouping.

All three of these CDPs are located along the Sterling Highway. Recorded settlement in the Clam Gulch area began in 1948 in association with a cannery (Bartolowits 1983). A community history of Cohoe notes that a large Kenaitze village was located in the vicinity until the 1890s. The area was then occupied mainly by individual cabins until 1932, when a grade school was built in the current location of Cohoe (Lewis 1983). In the Sterling area, three homestead sites were issued in 1947. The community began to form after the building of the Sterling Highway and the reopening of homesteading in 1953 (Pedersen and Pedersen 1983).

1) Are the communities in proximity and road-accessible to one another?

In relationship to the City of Kenai, Clam Gulch is 24 miles south and is immediately adjacent to the Cohoe CDP; the Cohoe CDP is 13 miles south of Kenai; and Sterling is 18 miles east (ADCA 2006). The Clam Gulch and Cohoe CDPs are currently located within the boundaries of the Kenai Area. More than 60% of the current Sterling CDP is included in the Kenai Area grouping and is immediately adjacent to the Ridgeway and Funny River CDPs (**Map 4**). All of these places are interconnected by paved highway.

2) Do they share a common high school attendance area?

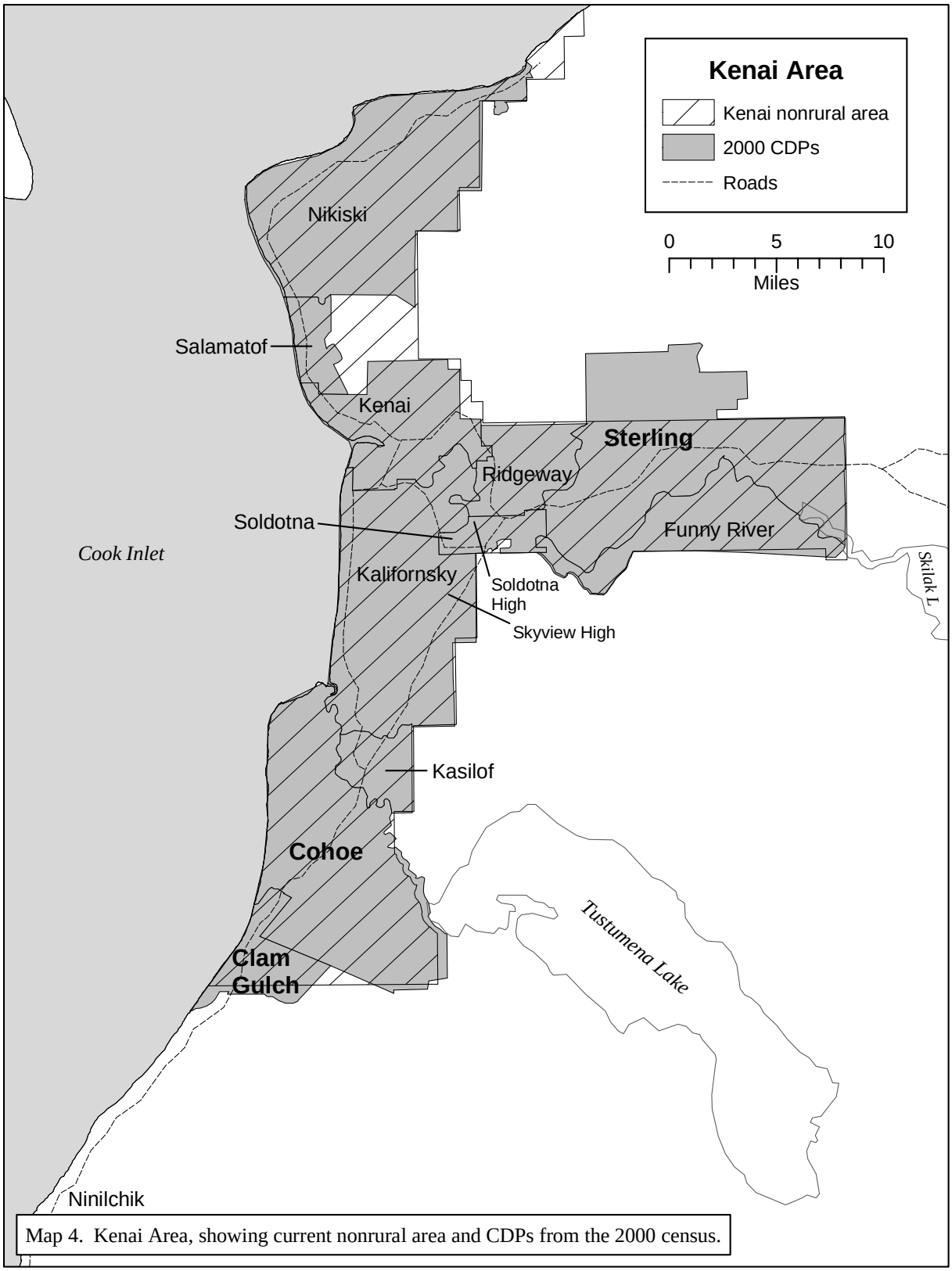
Students living within the Clam Gulch CDP boundaries are in the attendance area for the Ninilchik School, a K–12 school located in a rural area outside of the Kenai Area. Students living in the Cohoe CDP boundaries are included with students living within a portion of the Sterling CDP for the attendance area for Skyview High School, while students in the Remainder of Sterling CDP are in the attendance area for Soldotna High School (**Map 4**). Skyview and Soldotna High Schools are both located in the Kenai Area (KPBSD 2005).

3) Do 30% or more of the working people commute from one community to another?

In the Clam Gulch CDP, 29.9% of the workers commute to areas within the Kenai Area grouping. For the Cohoe CDP, 69.5% of the workers commute to areas within the Kenai Area grouping. In the Sterling CDP, 61.2% of the workers commute to areas within the Kenai Area grouping (ERS 2006).

Recommendations

In applying the grouping criteria as indicators of economic, social, and communal integration, there was a mixed outcome for the Clam Gulch CDP, leading to two options.



Map 4. Kenai Area, showing current nonrural area and CDPs from the 2000 census.

Clam Gulch CDP Option: Exclude from Kenai Area Grouping and Classify Rural

Clam Gulch CDP should be excluded from the Kenai Area grouping because, although commuting of workers is on the order of 30%, students of Clam Gulch CDP attend a high school to the south in a rural area outside of the Kenai Area, and Clam Gulch is the outermost place in terms of proximity to the current Kenai Area grouping.

If excluded from the nonrural Kenai Area, then Clam Gulch should be determined to be rural in status. The 2005 population estimate for Clam Gulch CDP is 172 (ADOLWD 2006), a level at which the community would be presumed to be rural. Additionally, census community characteristics for Clam Gulch CDP show 46% of the workers employed in full-time year-round wage employment, 26.9% unemployment, and $17,983 per capita income, which are levels characteristic of a rural community (U.S. Census 2000; **Appendix A**).

Clam Gulch CDP Option: Continue to include in Kenai Area Grouping

Clam Gulch CDP should continue to be included in the Kenai Area grouping because, although students of Clam Gulch CDP attend high school outside of the Kenai Area, the commuting of workers to the Kenai Area is on the order of 30%, and Clam Gulch is connected by paved highway to the Kenai Area, with which it has been grouped since initial determinations were made in 1990.

Cohoe CDP: Remain within Kenai Area Grouping

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Cohoe CDP should remain within the Kenai Area grouping. Their students attend a high school in the Kenai Area and the level of commuting, at 69.5%, is significantly above the minimum criteria for grouping.

Sterling CDP: Include entire CDP in Kenai Area Grouping

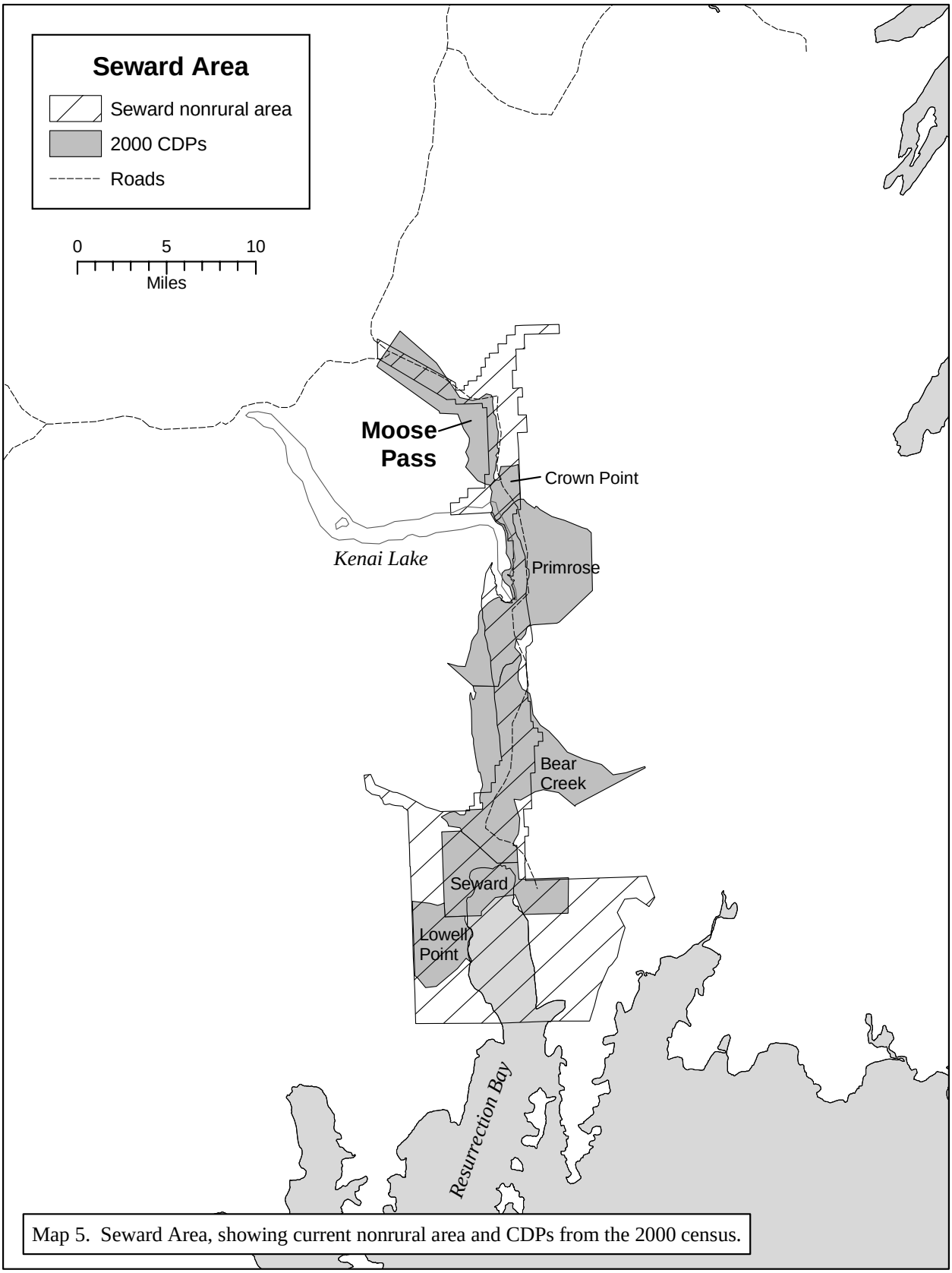
In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the boundaries of the Kenai Area should be adjusted to include all of the current Sterling CDP. All of the students within the Sterling CDP go to a high school within the Kenai Area and the level of commuting is at 61.2%, well above the minimum criteria for grouping.

SEWARD AREA

The Seward Area consists of the city of Seward and the following CDPs: Moose Pass, Primrose, Crown Point, Bear Creek, and Lowell Point (**Map 5**).

Should Moose Pass and similarly situated places be excluded from the Seward Area grouping?

Moose Pass is an unincorporated community on the Seward Highway. In 1909, limited settlement of Moose Pass began with the building of the Alaska Railroad. The settlement grew more



Map 5. Seward Area, showing current nonrural area and CDPs from the 2000 census.

rapidly after the construction of the Seward Highway in the late 1940s (Painter 1983). The Crown Point and Primrose CDPs were included in this analysis as similarly situated places.

1) Are the communities in proximity and road-accessible to one another?

Moose Pass, on the Seward Highway, is 26 miles north of the city of Seward (ADCA 2006). The Crown Point and Primrose CDPs are located to the south of Moose Pass along the highway to Seward (**Map 5**).

2) Do they share a common high school attendance area?

Students living within the Moose Pass CDP, Crown Point CDP, and Primrose CDP are bused to the Seward High School (Davis, Fall, and Jennings 2003).

3) Do 30% or more of the working people commute from one community to another?

Of the workers residing in the Moose Pass CDP, 31.9% commute to areas within the Seward Area grouping (ERS 2006). Of the workers residing in the Crown Point CDP, 41.2% commute to areas within the Seward Area grouping. Of the workers residing in the Primrose CDP, 57.7% commute to areas within the Seward Area grouping. Additional data from a study conducted by ADF&G provided information on job locations for these residents for the year 2000. A reported 51.1% of all jobs were located in Seward (Davis, Fall, and Jennings 2003).

Recommendation

Retain Moose Pass, Crown Point, and Primrose CDPs in the Seward Area grouping

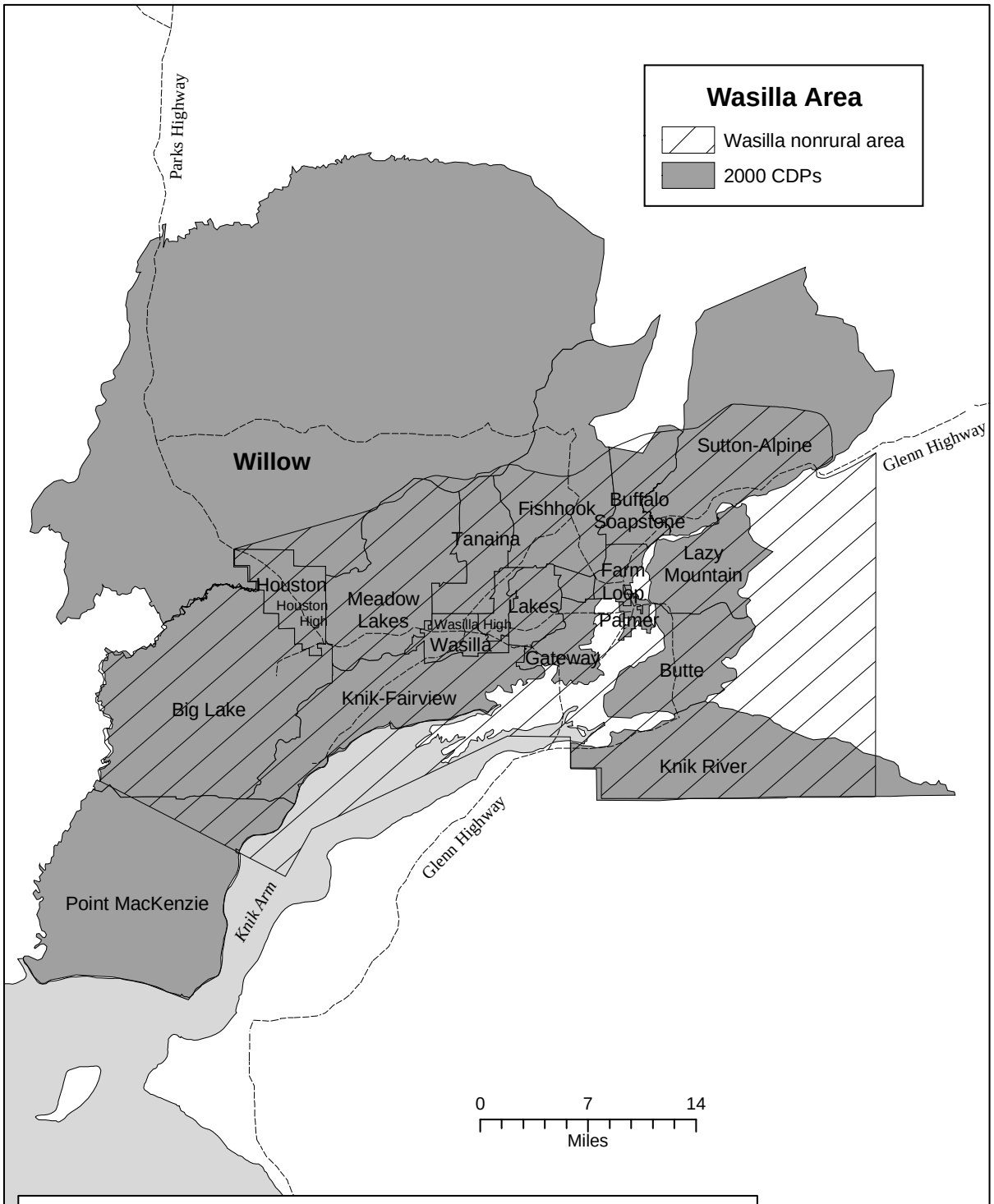
In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Moose Pass, Crown Point, and Primrose CDPs should remain within the Seward Area grouping. Moose Pass, Crown Point, and Primrose CDPs meet all the criteria for grouping: proximity and road-accessibility to the Seward Area; their students attend the high school in Seward; and the level of workers commuting to Seward for employment is greater than 30%.

WASILLA AREA

The Wasilla Area consists of the cities of Wasilla, Palmer, and Houston and the following CDPs: Sutton-Alpine, Big Lake, Houston, Butte, Meadow Lakes, Lazy Mountain, Knik-Fairview, Knik River, Lakes, Tanaina, Gateway, Fishhook, Farm Loop, and Buffalo Soapstone (**Map 6**).

Should Willow and Point MacKenzie CDPs, and similarly situated places, be included in the Wasilla Area grouping?

The community of Willow was founded in 1897 after the discovery of gold in Willow Creek. The Willow CDP contains crossings for a number of historic trails that eventually evolved into routes followed by the Alaska Railroad and the Parks Highway. These access points, along with land disposals and homesteading activities led to the growth of the current community.



Map 6. Wasilla Area, showing current nonrural area and CDPs from the 2000 census.

Point MacKenzie was named in 1794. This site served as an alternate landing area for the community of Knik until the building of the Alaska Railroad. Settlement in the Point MacKenzie area began in the late 1950s (ADCA 2006).

1) Are the communities in proximity and road-accessible to one another?

The Willow CDP, 25 miles northwest of Wasilla, is located between mile 60 and 80.7 of the George Parks Highway, north of Houston. Point Mackenzie CDP, 15 miles southwest of Wasilla, is located between the south shore of Knik Arm of Cook Inlet and the Little Susitna River and connects to the Wasilla Area by the Point MacKenzie Road (ADCA 2006).

2) Do they share a common high school attendance area?

Students residing in the Willow CDP are located in attendance areas for two high schools. Students along the Parks Highway north of Willow Fishhook Road are in the attendance area for Su-Valley High School, located in a rural area. Students south of Willow Fishhook Road are in the Houston High School attendance area, located in the Wasilla nonrural area. Students living in the Willow Fishhook Road portion of the Willow CDP have the option of attending either high school (Trimmer 2006, pers. comm.).

Students residing in the Point MacKenzie CDP are in the attendance area for Wasilla High School (MSBSD 2006).

3) Do 30% or more of the working people commute from one community to another?

During the 2000 U. S. Census, there were 29 workers in the Point MacKenzie CDP labor force and 0% unemployment. Fifty percent of the workers residing in the Point MacKenzie CDP commute to areas within the Wasilla Area grouping. The workers in the Willow CDP were commuting to the Wasilla Area at a rate of 23.9% (ERS 2006).

Recommendations

Willow CDP: Do not group in Wasilla Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Willow CDP should not be included in the Wasilla Area grouping. Students in the Willow CDP are located in two attendance areas for high schools, within and outside of the Wasilla Area. The level of commuting for workers to the Wasilla Area is at 23.9%, which is below the criteria identified for grouping.

Point MacKenzie CDP: Include in Wasilla Area Grouping

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Point Mackenzie CDP meets all the criteria for grouping with the Wasilla Area. The Point Mackenzie CDP is in proximity to the Wasilla Area and road-accessible; their students attend Wasilla High School; and the level of workers commuting to the Wasilla Area for employment is at 50.0%.

HOMER AREA

The Homer Area grouping consists of the cities of Homer and Kachemak and the following CDPs: Anchor Point, Fritz Creek, and Diamond Ridge. The Miller Landing CDP and portions of the Diamond Ridge CDP were annexed by the City of Homer in 2002 (ADOLWD 2006).

Should Happy Valley, Fox River, and similarly situated places be included in the Homer Area grouping?

Happy Valley and Fox River are two CDPs specifically identified for potential inclusion within the Homer Area grouping (**Map 7**). The Happy Valley CDP, on the west coast of the Kenai Peninsula on the Sterling Highway, lies between Ninilchik and Anchor Point. This CDP is north of the Homer Area. More than 50% of the Anchor Point CDP is currently included in the nonrural Homer Area. The rural portion of the Anchor Point CDP, known as the North Fork Road area, and the Nikolaevsk CDP, are similarly situated places included in this analysis (**Map 7**).

The Fox River CDP, which includes the communities of Razdolna and Kachemak Selo, is located beyond the Homer Area to the northeast, and extends to the north shore of Kachemak Bay. More than 50% of the Fritz Creek CDP is currently included in the nonrural Homer Area. The rural portion of the Fritz Creek CDP, including the community of Voznesenka, is a similarly situated place that was included in this analysis.

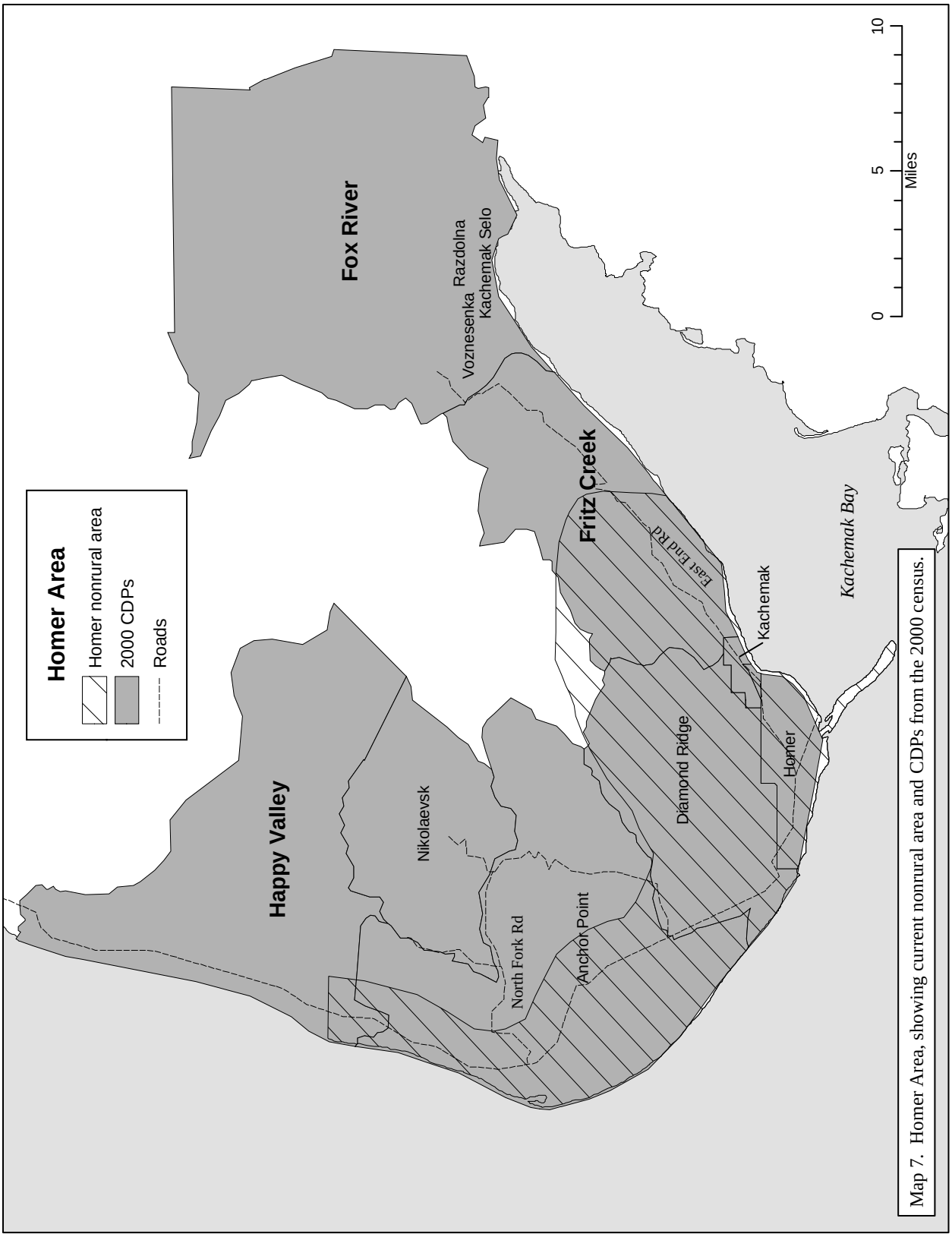
1) Are the communities in proximity and road-accessible to one another?

Happy Valley, at milepost 148 on the Sterling Highway, is 22 miles north of Homer. The Happy Valley CDP is immediately adjacent to the nonrural portion of the Anchor Point CDP.

The current Homer Area grouping includes more than 50% of the Anchor Point CDP. The remaining rural portion of the Anchor Point CDP, designated as the North Fork Road area (Fall et al. 2000), is immediately adjacent to the Homer Area and road-accessible.

The Nikolaevsk CDP is north of the Anchor Point CDP, and connected to the Homer Area by the North Fork Road.

The current Homer Area grouping includes more than 50% of the Fritz Creek CDP. A 1998 study of the rural areas outside of Homer divided the rural portion of Fritz Creek CDP into two areas designated as Fritz Creek East and Voznesenka (Fall et al. 2000). Fox River CDP, 24 miles northeast of Homer, is immediately adjacent to the rural portion of Fritz Creek CDP (**Map 7**). East End Road connects Homer to the Fritz Creek CDP and the Fox River CDP. Along East End Road, McNeil Canyon Elementary School, milepost 12.5, marks the nonrural/rural boundary of the Fritz Creek CDP (**Map 7**). This road is paved to a school bus turnaround at milepost 20.5, and beyond this point there are about 3 miles of unpaved road to Voznesenka. Razdolna is accessed by 15 miles of unpaved road on a turnoff from the paved portion of East End Road a few miles before the school bus turnaround. Kachemak Selo is completely off the road system; travelers must either hike or switch to off-road vehicles to reach this community (Spooner 2006, pers. comm.).



Map 7. Homer Area, showing current nonrural area and CDPs from the 2000 census.

2) Do they share a common high school attendance area?

While the Kenai Peninsula Borough School District has defined attendance areas for the schools in the district, the web site and district personnel note that exceptions are allowed where space is available and the parents are willing to provide transportation.

Happy Valley is located within the attendance area for the Ninilchik School.

The North Fork Road portion of the Anchor Point CDP is within the attendance area of Homer High School and Nikolaevsk School. Nikolaevsk school is located outside of the Homer Area in a rural portion of the Kenai Peninsula. For the 2005/06 school year, two high school students from the North Fork Road attended Nikolaevsk School (KPBSD 2005; Conley 2006, pers. comm.). The Kenai Peninsula School District transportation office noted that a few students also attended Ninilchik High School, which is outside the attendance areas of Nikolaevsk School and Homer High School, but that the vast majority of North Fork Road students attend Homer High School (Spooner 2006, pers. com.).

Nikolaevsk has a K–12 school. Transportation of high school students to Homer is not necessary.

Students residing in Fritz Creek East are within the Homer High School attendance area, except that the community of Voznesenka has its own K–12 school (KPBSD 2005).

The communities of Razdolna and Kachemak Selo, in the Fox River CDP, each has a K–12 school within their community (KPBSD 2005).

3) Do 30% or more of the working people commute from one community to another?

Data considerations

Census data are tabulated on the basis of cities, CDPs and "Remainder" areas, areas outside of the boundaries of cities or CDPs. For three areas smaller than CDPs, North Fork Road area, Fritz Creek East area, and Voznesenka, data on employment locations was available from an ADF&G study commissioned by the Office of Subsistence Management (Fall et al. 2000). The questions asked during that study referred to all employment for the previous year (1998), while the 2000 U.S. Census question referred to employment for the week immediately prior to the census. The percentages reported in the ADF&G study were based on locations for multiple jobs throughout the year. These percentages were adjusted based upon the average number of jobs for each area identified in the study. In North Fork Road, there were 1.26 jobs per worker; in Fritz Creek East 1.29; and in Voznesenka 1.37 (**Table 1**). For all three areas, the minimum number of jobs held in 1998 was one and the maximum was three (Fall et al. 2000: 46). It should be noted that the actual percentage of workers from each area who were employed in the Homer Area can only be obtained from reviewing the raw survey data.

The 2000 U.S. Census shows that Happy Valley CDP had 204 residents in the labor force; of these 157 were employed (U.S. Census 2000). Commuting data show that 14.4% of these workers were employed in the Homer Area (ERS 2006; **Table 2**).

Table 1. Employment locations and adjustments for selected places in the vicinity of Homer (based on Fall et al. 2000: 46, 53).

	Employment Locations		
Area or Community	**Anchor Point**	**Homer**	**Homer Area**
North Fork Road (255 individuals with 321 jobs)	21.8%	38.2%	60.0%
Fritz Creek East (258 individuals with 332 jobs)	0.7%	55.9%	56.6%
Voznesenka (103 individuals with 141 jobs)	0.0%	19.5%	19.5%

	Estimated Workers		
Area or Community	**Anchor Point**	**Homer**	**Homer Area**
North Fork Road (mean number of jobs: 1.26)	15.2%	26.7%	41.9%
Fritz Creek East (mean number of jobs: 1.29)	0.5%	43.3%	43.8%
Voznesenka (mean number of jobs: 1.37)	0.0%	14.0%	14.0%

In the North Fork Road area, 41.9% of the workers were employed in the Homer Area (**Table 1**). Data from Fall et al (2000) show that 22% of jobs held by Nikolaevsk residents were located in the Homer Area.

Data from the U.S. Census shows that the Fox River CDP had 76 residents in the labor force; of these, 68 were employed (U.S. Census 2000). Commuting data show that 5.2% of these workers were employed in the Homer Area (ERS 2006).

Table 2. Commuting flows for selected places in the vicinity of Homer, based on 2000 U.S. Census data (ERS 2006).

Community	**Anchor Point**	**Homer**	**Homer Area**
Anchor Point CDP includes North Fork Road	21.2%	37.7%	58.9%
Fritz Creek CDP includes Fritz Creek East and Voznesenka	0.0%	58.0%	58.0%
Happy Valley	2.5%	11.9%	14.4%

Data specific to the Fritz Creek East area and Voznesenka were not available from the U.S. Census, but were obtained from Fall et al. (2000) (**Table 1**). For the Fritz Creek East area, 43.8% of the 1998 employment locations were in the Homer Area. For Voznesenka, the rate of employment in the Homer Area was significantly different from commuting data for the entire Fritz

Creek CDP and 1998 employment locations for the smaller Fritz Creek East area. The 1998 data shows that only 14.0% of Voznesenka employment locations in 1998 were in the Homer Area.

Recommendations

Happy Valley: Do not include in Homer Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that residents of the Happy Valley CDP fulfill only the proximity criterion for grouping with the Homer Area. Their students are within the Ninilchik School high school attendance area, and less than 30% of their workers commute to the Homer Area (14.4%). Residents of the Happy Valley CDP should not be included with the Homer Area.

North Fork Road Option: Do not include in Homer Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that for the residents of the North Fork Road area, while the proximity and commuting criteria are met, their students have the option of attendance in Nikolaevsk School or Ninilchik High School instead of Homer High School, and some of the families exercise this option. The case for economic and social integration with the Homer Area is not definitive, therefore the North Fork Road portion of the Anchor Point CDP should not be grouped with the nonrural Homer Area.

North Fork Road Option: Include in Homer Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that residents of the North Fork Road area fully meet two of the three criteria, proximity and commuting of workers. For the third criteria, although students have the option of attendance in Nikolaevsk School or Ninilchik High School, the vast majority go to Homer High School. There is sufficient basis for considering the North Fork Road area of the Anchor Point CDP to be economically, socially, and communally integrated with the nonrural Homer Area.

Nikolaevsk: Do not include in Homer Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Nikolaevsk CDP, north of the Anchor Point CDP and connected to the Homer Area by the North Fork Road, did not warrant inclusion in the Homer Area. There is a K–12 school in Nikolaevsk, and data from Fall et al (2000) show that 22% of jobs held by Nikolaevsk residents were located in the Homer Area.

Fritz Creek East: Include in Homer Area, except Voznesenka

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found for Fritz Creek East that, except for Voznesenka, the residents are economically, socially, and communally integrated with the Homer Area. They are in proximity and road-connected to the Homer Area, within 20 miles. The Homer High School attendance area includes their students, and 43.8% of their workers commute to the Homer Area. Voznesenka should not

be included in the Homer Area because, while it is in proximity and road-connected to the Homer Area, about 25 miles, the number of jobs shown as being located within the Homer Area is only 19.5%, and students attend high school within their own community.

Fox River CDP: Do not include in Homer Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that residents of Fox River CDP, primarily in the communities of Razdolna and Kachemak Selo, do not meet the three criteria, which would indicate their residents are not economically, socially and communally integrated with the Homer Area.

DELTA JUNCTION VICINITY

Delta Junction Vicinity: Grouping

The Delta Junction vicinity assigned for analysis consists of Delta Junction, Big Delta, Deltana, and Fort Greely.

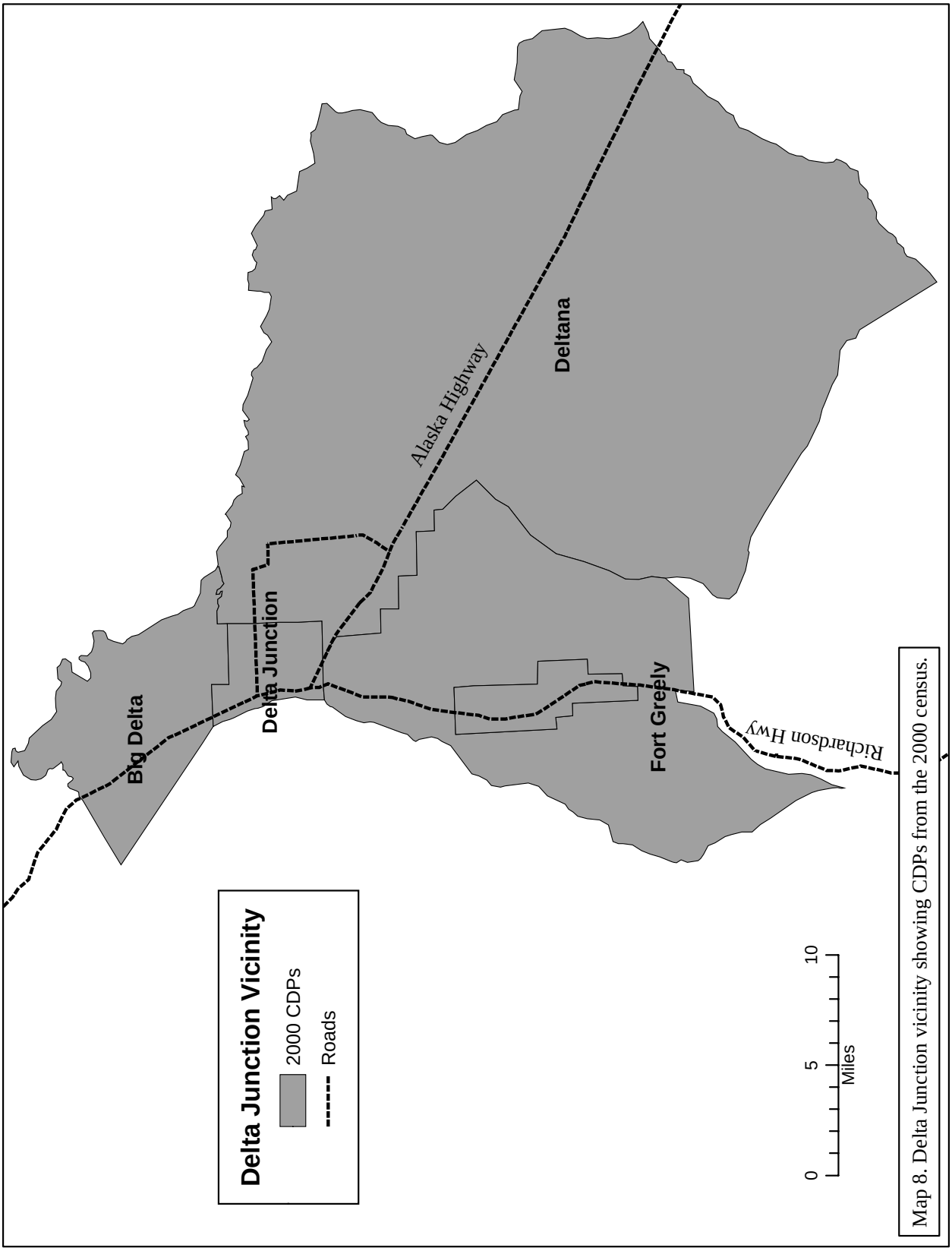
Should Delta Junction, Big Delta, Deltana, and Fort Greely be grouped, and their rural/nonrural status evaluated collectively?

1) Are the CDPs in proximity and road accessible to one another?

All four CDPs are road connected and adjoining. The Delta Junction vicinity (**Map 8**) is located in the Southeast Fairbanks Census Area along the Alaska and Richardson Highways. The City of Delta Junction is located along the Delta River at the junction of the Richardson and Alaska Highways, approximately 9 miles southeast of Big Delta. Big Delta is situated at the confluence of the Delta and Tanana Rivers, approximately 73 miles southeast of the City of Fairbanks on the Richardson Highway. Fort Greely is located approximately 100 miles southeast of the City of Fairbanks and 5 miles south of Delta Junction just off the Richardson Highway and east of the Delta River, bordered by the Donnelly Training Area. Deltana is southeast of Delta Junction on the Alaska Highway, near the junction of the Alaska and Richardson Highways, approximately 100 miles southeast of the City of Fairbanks (ADCA 2006).

2) Do they share a common high school attendance area?

The two main high schools in the vicinity, Delta Junction Jr./Sr. High School and New Horizons High School are located in Delta Junction. Delta Charter Cyber School and Delta-Greely Correspondence/Alternative High School are also based in Delta Junction. There are no public high schools in Big Delta, Deltana, or Fort Greely (ADCA 2006). However, a small number of high school-age students residing in Big Delta and Deltana attend school at Gerstel River School located in Deltana (with 8 high school students enrolled) and Whitestone Farms Training Center School in Big Delta (17 high school-age students enrolled). There are also a small number of high school students in the vicinity that are home schooled (Johnson 2006, pers. comm.).



Map 8. Delta Junction vicinity showing CDPs from the 2000 census.

3) Do 30% or more of the working people commute from one CDP to another?

According to the 2000 U.S. census, in two of the CDPs of interest, over 30% of the working people commuted to another CDP of interest in this vicinity (ERS 2006). Specifically, 41% of the workers living in Big Delta commuted to either Delta Junction, Deltana, Fort Greely or to a Remainder area within the Southeast Fairbanks Census area, and 45% of the workers in Deltana commuted to work in Delta Junction or Fort Greely. Average commuting time for Big Delta workers was 30 minutes, while the average for Deltana's workers was 21 minutes. Seventy-seven percent of the Fort Greely workers are employed at the base, within the CDP. The average commuting time for Fort Greely workers is five minutes.

Recommendation

> *The four Delta Junction vicinity CDPs should be grouped for purposes of rural/nonrural analysis*

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the four Delta Junction vicinity CDPs assigned for analysis (Delta Junction, Big Delta, Deltana, and Fort Greely) should be grouped as an area for purposes of rural/nonrural analysis because they fulfill the three guidelines for grouping: 1) all four CDPs are road connected and proximal; 2) the majority of the high school-age students from Big Delta, Deltana, and Fort Greely attend high school in Delta Junction; and 3) in the two outlying CDPs, over 30% of the workers commute within the vicinity (41% of the workers living in Big Delta commute to either Delta Junction, Deltana, Fort Greely, or to a Remainder area within the Southeast Fairbanks Census Area, and 45% of the workers in Deltana commute to Delta Junction or Fort Greely).

Delta Junction Area: Rural/Nonrural Analysis

Background

The places comprising the Delta Junction Area are currently designated rural by the Board.

History and Demographics

Archeological sites show that the Delta Junction Area was first inhabited by Tanana Athabaskan Indians. The Tanana Athabaskans continued living in the area until the first part of the 20th century. The recent history of the Delta Junction Area is tied closely to the development of different modes of transportation that were built through the Tanana River Valley. Between 1898 and 1903, the Alaska Gold Rush peaked and its impact on the local area was profound when the Army completed the Trans-Military Road extending from Valdez to Eagle City. The road was a result of the Army sending parties to investigate the Susitna, Matanuska, and Copper River valleys to find the best route for a trail north from Valdez, through the Copper River Valley. On-going mining activities just north of Delta Junction continued to bring many prospectors to the area.

During World War II there was an influx of people into the Delta Junction Area with military construction of the Allen Army Airfield just south of what is today Delta Junction. The construc-

tion of the Alaska Highway brought new settlers to the area as well as new economic opportunities. The next upswing to the area's population and economy was the construction of the Trans-Alaska pipeline between 1974 and 1977. In 1978, the state initiated the first Delta Agriculture Project, which continues today. In the 1980s a number of religious communities, such as Whitestone Farms, settled in the Delta Junction Area and continue to thrive today (Coyne 2002). In the 1990s, there was a large influx of Russian and Ukrainian refugees who established themselves in the area for political and religious asylum. Today, the fact that local school enrollment is made up of 20%–30% Russian/Ukrainian students (Beemer 2006, pers. comm.) and many of the local businesses employ the immigrants, attests to their economic and educational success in assimilating and making contributions to the local area (Olsson 2006).

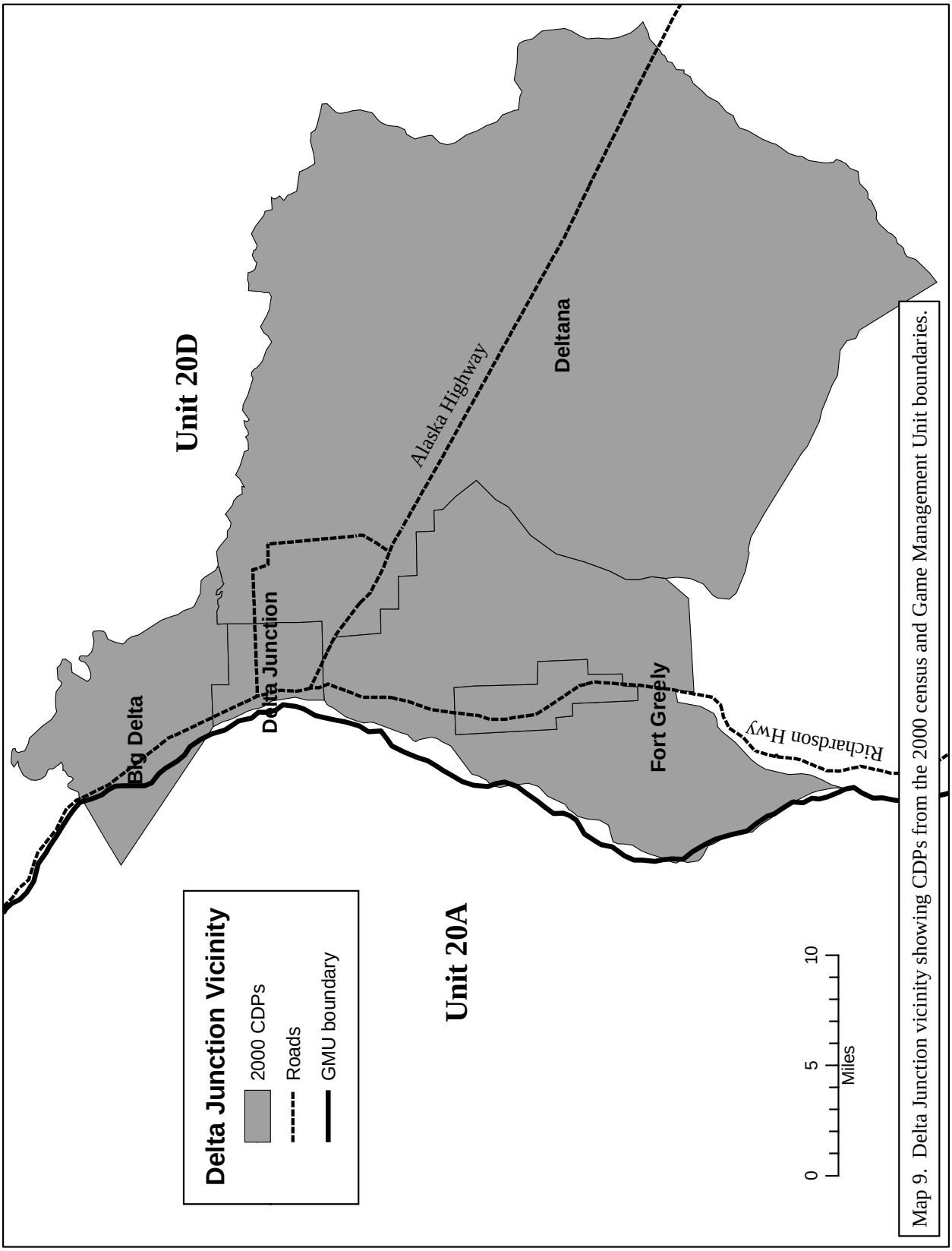
In 2005, the Delta Junction Area population was 3,921, an approximate 8% increase from 2000. This number includes 1,047 residents living in Delta Junction, 738 in Big Delta, 1,939 in Deltana, and 197 in Fort Greely (ADCA 2006). Between 1990 and 2005, the Delta Junction Area experienced a moderate increase in population. However, this includes a population decrease of over 35% in Fort Greely over the same period.

Economy

In the last four years, the Delta Junction Area has experienced an economic upswing similar to the pipeline days as Fort Greely has became fully operationally once again while the missile test bed is in the process of being constructed. Fort Greely had been the economic mainstay of the area following World War II until 1995, when the local economy temporarily turned downward with the base placed on the Base Realignment and Closure list. In recent years, the Department of Defense has provided $18 million to $20 million in Federal funds to the local economy to help build infrastructure (i.e. fire hall, ambulance service, library renovations) in order to provide additional support services for the Fort Greely missile project (ADCA 2006; McCombs 2006 pers. comm.). Fort Greely's military and civilian payroll was estimated at close to $20 million for the fiscal year ending in September 2005 (FY 05). Military construction for FY 05 has been estimated at over $45 million (ADCA 2006). In addition to Fort Greely's contribution to the economy of the area, approximately 200–300 new jobs have been created with the development of the Pogo mine (McCombs 2006 pers. comm.). Mineral deposits near Tangle Lakes south of Delta Junction will likely result in additional development of mining in the area (Wikipedia 2006). Other major employers in the area are the Delta/Greely School District and Alyeska Pipeline Service Co. (Burcham, Zimmerman, and White 2006, pers. comm.). Additionally, agriculture, small businesses, and State and Federal highway maintenance jobs provide important sources of employment for local residents.

Infrastructure

The Delta Junction Area is home to a wide variety of businesses as well as local, State, and Federal government branch offices. Local businesses include a bank with an ATM, a grocery store, several hotels, restaurants, and gas stations. There is a library, volunteer fire department, recreational activities (such as a hockey rink), a variety of support services for the visitor industry, a sporting goods store, a local meat and sausage market, freight, numerous dairies, RV parks, motels and bed and breakfast accommodations.



Map 9. Delta Junction vicinity showing CDPs from the 2000 census and Game Management Unit boundaries.

Households have individual wells and septic systems and almost all homes are fully plumbed. Due to the fact that businesses and residences are spread out over a large area, a community septic system is not practical. Refuse is collected by a private firm. The cost of food index is $145, and the electricity rate is $0.14 per KWH (**Appendix A**).

Use of Fish and Wildlife

There are no Federal public lands in Units 20A, B, or C, and only a small amount of BLM land is located off the Richardson Highway in Unit 13 (**Map 9**). There is insufficient information on contemporary subsistence harvests by residents of the Delta Junction Area to contribute meaningfully to an evaluation of rural/nonrural status. A household survey of the communities in the Delta Junction Area has not been conducted. Harvest data from permits would be an incomplete assessment, for the reasons outlined in the Methods section of this report, and is not readily available for these communities.

Wolfe (2000) reported an estimated subsistence harvest of 16 pounds per capita as an average for a pooled "Fairbanks-Delta" area. Given the order of magnitude difference in population size between the Fairbanks North Star Borough and the Delta Junction Area, such a pooled estimate is driven by data for Fairbanks. Thus, the pooled estimate, when taken to represent Fairbanks, is not much affected by including Delta Junction, but the opposite is not the case. The pooled estimate, if taken to represent Delta Junction, is substantially affected by the weight of the Fairbanks component. Even if harvest data from permits were compiled for Delta Junction independently from Fairbanks, it would not represent a comprehensive assessment such as is obtained from household surveys, and would therefore not be as helpful in evaluating rural/nonrural status.

Recommendation

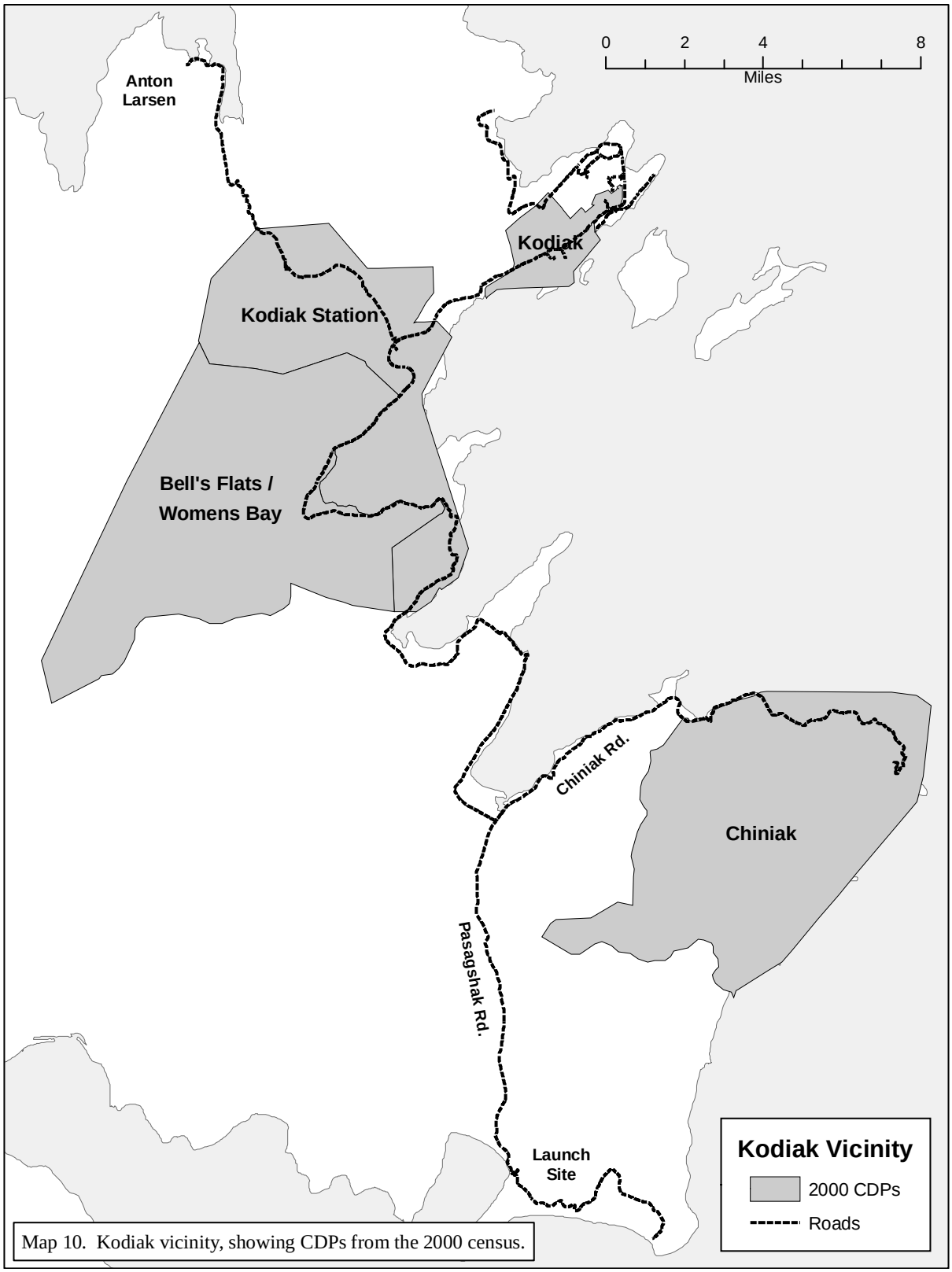
Rural

The four places grouped into the Delta Junction Area for the purpose of this analysis should remain rural in status. The population size of the grouping (3,921) places it in the nonpresumptive midrange, and information on the characteristics of the grouping, although somewhat limited, is indicative of a rural character. The recent economic upswing to the area due to construction of the Missile Defense system at Fort Greely and development of the Pogo Mine is thought to be temporary (Burcham, L. D. Zimmerman, and P. White. 2006, pers. comm.).

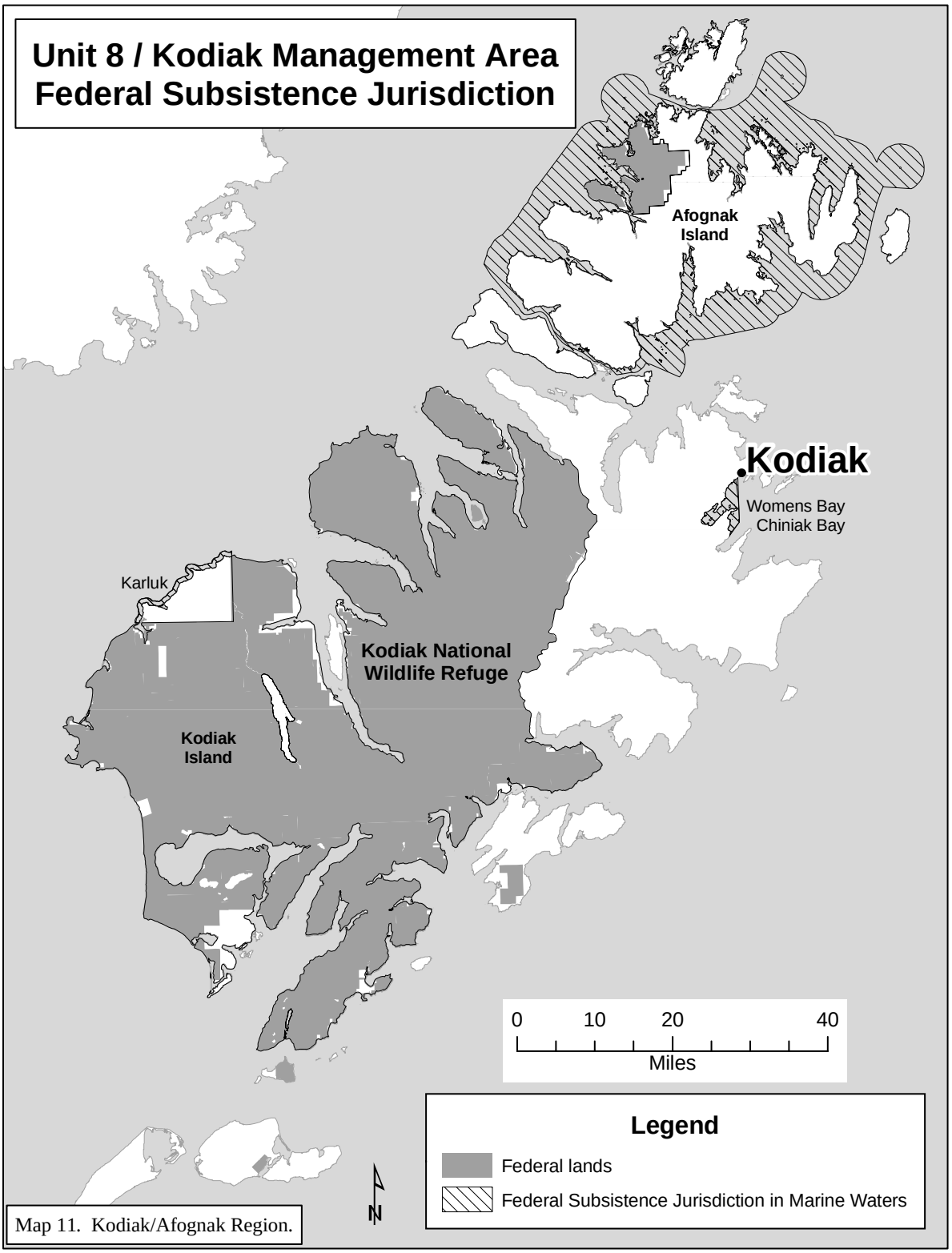
KODIAK AREA

Kodiak (Road System) Area: Grouping

The area under consideration in this analysis is the City of Kodiak and the surrounding road system (**Map 10**). There are four CDPs in the vicinity: 1) City of Kodiak, 2) Kodiak Station (the U.S. Coast Guard Station), 3) Women's Bay, and 4) Chiniak. Additionally, there are people living along the road system outside of these CDPs and the city limits, referred to by the U.S. Census as the "Kodiak Island Census Subarea Remainder," and referred to from here forward as the



Map 10. Kodiak vicinity, showing CDPs from the 2000 census.



Map 11. Kodiak/Afognak Region.

"Remainder" (which does not include named places elsewhere in the borough, such as Karluk, Larsen Bay, Port Lions, Akhiok, Old Harbor, and Ouzinkie). This analysis will first analyze how the Kodiak Area grouping should be defined, and then the resulting grouping, referred to as the Kodiak Area, will be analyzed as to whether or not its rural determination should change.

The City of Kodiak is located on the northeastern tip of Kodiak Island (**Map 11**) in the Gulf of Alaska, 250 miles south of Anchorage. It is the second largest island in the U.S. The City of Kodiak encompasses only 3.5 square miles of land, but there are roads extending outside of the city a total distance of about 75 miles that connect outlying residents to the City of Kodiak (ADCA 2006).

Should the Kodiak Coast Guard Station CDP be included in the Kodiak Area grouping?

The Kodiak Coast Guard Station is south of and adjacent to the City of Kodiak. It encompasses 32.8 square miles of land and 7.3 square miles of water. This large tract of military property on Kodiak Island has been occupied since the World War II Aleutian Campaign. Originally it served as an Army Base, then a Naval Base in 1938–1939. The Coast Guard had a small detachment at one of the hangars during the years the Navy was in Kodiak. Eventually, in 1972, the Navy moved out and the Coast Guard took over operations of the facility (ADCA 2006).

The Coast Guard base in Kodiak is one of the largest in the world with more than 900 active personnel and 1,700 dependents. Base housing has room for up to 424 families and there are 128 rooms with one to two people per room in the barracks. In 2005, the population of the Kodiak Station CDP was 1,975. About 275 Coast Guard families and individuals live outside of the base in the town of Kodiak or on the road system. The base employs approximately 300 civilians in the area. There are base contractors, such as Alutiiq Management Services, which employs up to 130 people, and Brechan Enterprise, which hires seasonally and on a case by case basis. The base also provides services for about 1,000 retired military and their families (Lachowsky 2006, pers. comm.).

The Kodiak Coast Guard Base, although important to Kodiak's fishing fleet and the community of Kodiak, is relatively self-sufficient. The government provides a wide range of programs, facilities and opportunities for the Coast Guard community. Coast Guard infrastructure includes base housing, a hospital, military police, fire department, postal service, preschool, elementary school, and day care facilities. Shopping privileges and eating establishments are available at the base commissary, exchange and convenience stores, a cafeteria, a restaurant and lounge. Recreational and entertainment opportunities include a swimming pool, fitness center, gym, pizza parlor, restaurant and bar, movie theatre, auto hobby shop, boat house, golf course, teen center, community center, and bowling alley (ADCA 2006; Lee 2006 pers. comm., Lachowsky 2006, pers. comm.).

The average tour of duty for single Coast Guard personnel is two years; for families the average tour is three years. This can vary depending on which unit personnel are assigned to, if and how many dependents they have, and the specific job assignment. Often they can be reassigned or file for an extension and remain in Kodiak longer than their 2–3 year tour. Active duty personnel have the option of becoming an Alaska resident if they choose (Volpe 2006, pers. comm.). The U.S. Census (2000) found that 80% of the residents in the Kodiak Station CDP lived somewhere

other than Kodiak Island in 1995 (compared to 17% for Kodiak City), indicating a high rate of turnover of Coast Guard personnel. The ADF&G subsistence use study conducted in 1993 found that there were no people who had lived on the Coast Guard Base more than nine years, no one was born on the base, and no one was over the age of 50 (ADF&G 2001). The subsistence uses of the Coast Guard are discussed more fully in the section on use of fish and wildlife.

1) Are the communities in proximity and road-accessible to one another?

The Coast Guard Station is connected by road to the City of Kodiak and the Remainder. By car, it is about a 15 minute trip to downtown Kodiak (Armstrong 2006*b*).

2) Do they share a common high school attendance area?

There is one elementary school which is part of the Kodiak Island Borough School District located on Coast Guard property. High school students attend Kodiak High School.

3) Do 30% or more of the working people commute from one community to another?

The U.S. Census (2000) indicated that of residents who work, 36% (325) of the Kodiak Station CDP residents work in Kodiak City, 60% (534) work in the Remainder, and only 3% (24) work on the Kodiak Station CDP (ERS 2006). These data are not correct. According to the Kodiak Coast Guard Station Housing Director (Murray McMahon, pers. comm., 2006), the total number of workers (894) estimated by the census is probably correct, within plus or minus fifty workers. However, of the 894 workers, approximately 794 are enlisted personnel working on base, which shares the same boundaries as the Kodiak Station CDP. McMahon estimates that approximately 100 of the 894 workers (about 11%) are spouses working off base in Kodiak City. Thus, all of the enlisted personnel living on base work on the base, and all of the working dependents living on the base work off of the base in Kodiak City. In terms of commuting flow in the other direction, approximately 10% of workers resident in Kodiak City work in the Kodiak Station CDP (ERS 2006).

Recommendations

Option to Group the Kodiak Coast Guard Station in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Kodiak Station CDP should be included in the Kodiak Area grouping. The Kodiak Station CDP directly fulfills two of the three criteria for being grouped in the Kodiak Area, and special consideration is warranted in relation to the third criteria: 1) The Kodiak Station CDP is road-connected and adjacent to the City of Kodiak; 2) the Kodiak Station CDP does not have a high school; all students attend high school in the City of Kodiak; and 3) the special circumstance of enlisted employment accounts for the overall commuting level of workers to Kodiak City being an estimated 11% of all working residents. However, this can be attributed to the fact that enlisted personnel residing on the base are by duty assignment bound to the base. Working dependents, who are not bound to employment on the base, virtually all work in Kodiak City. While the worker commuting criteria is thereby not met if one pools enlisted personnel

and working dependents, ties to the Kodiak Area are otherwise evident. For example, the fishing industry is a key component of the Kodiak economy, and the Coast Guard performs essential search and rescue and enforcement functions. Although it is not known what portion of income of base personnel is spent on the base versus in the surrounding area, it is worth noting that the annual Coast Guard payroll is $50 million (Kodiak Chamber of Commerce 2005). If there were ever an initiative to close or relocate the Coast Guard Station, Kodiak City residents would no doubt assert the importance of the base to the life of the greater community.

Option to Not Group the Kodiak Coast Guard Station in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Kodiak Station CDP should not be included in the Kodiak Area grouping. The Kodiak Station CDP fulfills two of the three criteria for being grouped in the Kodiak Area: 1) The Kodiak Station CDP is road-connected and adjacent to the City of Kodiak; and 2) the Kodiak Station does not have a high school; all students attend high school in the City of Kodiak. The third criteria is not fulfilled in that an estimated 11% of all working residents are employed in the City of Kodiak, considering enlisted personnel and working dependents combined. Since only two of the three criteria are fulfilled, the Coast Guard Station should be considered as not grouped by the Board. In addition to the criteria, the Coast Guard Station is a self-sufficient military base, providing all of the necessities for the enlisted personnel and their dependents: employment, housing, health care, recreation, and food and other supplies.

Should Women's Bay CDP (Bell's Flats) be included in the Kodiak Area grouping?

Women's Bay CDP (referred to locally as Bell's Flats) is outside of the city limits of Kodiak, about 8 miles south of the City of Kodiak. The area encompasses 43.7 square miles. Originally it was settled by homesteaders, but later the property was transferred to the State and then to the Borough. It is named for the bay it overlooks. There is only 5.5% unemployment and no one is living below the poverty level. There are no schools, hospitals, or other services (ADCA 2006).

1) Are the communities in proximity and road-accessible to one another?

Women's Bay CDP is connected by road and proximal to the City of Kodiak and the Remainder.

2) Do they share a common high school attendance area?

There are no schools in Women's Bay CDP. All children in Women's Bay attend high school in the City of Kodiak or are homeschooled.

3) Do 30% or more of the working people commute from one community to another?

Of residents who work, 44% of the Women's Bay CDP residents work in Kodiak City, 46% in the Remainder, and only 10% in Women's Bay. There may be a coding error for the Remainder—more workers would be expected to be working on the Kodiak Coast Guard Station, but it was impossible to determine the accuracy from the codes provided (ERS 2006; U.S. Census 2000).

Recommendation

Group Women's Bay CDP (Bell's Flats) in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Women's Bay CDP should be included in the Kodiak Area grouping. Women's Bay CDP fulfills all three criteria for being grouped in the Kodiak Area: 1) Women's Bay CDP is road-connected and proximal to the City of Kodiak; 2) Women's Bay CDP does not have a high school; students attend high school in the City of Kodiak; and 3) more than 30% of the working residents are employed in the City of Kodiak.

Should the road-connected Remainder area be included in the Kodiak Area grouping?

People living along the road system (**Map 10**) outside of the City of Kodiak, Women's Bay CDP, the Coast Guard Station, and Chiniak should also be considered for being grouped with the City of Kodiak. The current road system stretches north and south of the city, connecting Chiniak, Pasagshak (a subdivision close to the launch site), the Coast Guard Station, and Women's Bay (**Map 10**). There is little socioeconomic information about this area other than the population and commuting information. The population of the Remainder area, with the exception of about 350 people, live along the road system.

1) Are the communities in proximity and road-accessible to one another?

The Remainder is connected by road to the City of Kodiak and is in proximity to the area (**Map 10**).

2) Do they share a common high school attendance area?

There are no high schools in the Remainder area; students attend high school in the City of Kodiak.

3) Do 30% or more of the working people commute from one community to another?

Of residents in the Remainder area who work, 59% work in the City of Kodiak. The following percentages of workers from the other areas work in the Remainder area: 16% of City of Kodiak workers, 46% of Women's Bay workers, and 12% of Chiniak workers (ERS 2006; U.S. Census 2000).

Recommendation

Group the road-connected Remainder area in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the road-connected Remainder area should be included in the Kodiak Area grouping. The road-connected Remainder area fulfills all three criteria for being grouped in the Kodiak Area: 1) the road-connected Remainder area is proximal to the City of Kodiak; 2) students from

the road-connected Remainder area attend high school in the City of Kodiak; and 3) more than 30% of the working residents of the Remainder area are employed in the City of Kodiak.

Should Chiniak be included in the Kodiak Area grouping?

Chiniak is a small community located 45 miles southeast of the City of Kodiak on the eastern-most point of Kodiak Island. Chiniak is an Alutiiq name, first reported in 1778 by Captain Cook (ADCA 2006).

Chiniak has a library, K-10 school, post office, bakery, and roadhouse, which are the primary sources of permanent employment. There is no store or gas station in Chiniak (ADCA 2006; Armstrong 2006*b*).

Chiniak does not have its own airport. An old airstrip is used only for emergency landings. There is a small dock for local boat owners. The population of Chiniak reportedly dropped from 135 in 1988 to 50 in 2000, and an estimated 52 in 2005 (ADOL 1989, U.S. Census 2000, ADOLWD 2006). This population estimate appears to be significantly under the approximately 90 residents in Chiniak during a field visit in February 2006 (Armstrong 2006*b*). Of these, an estimated 47 were employed, 7 were of working age but not employed, 19 were retired, and 17 were under the age of 18. There were ten people who had vacation homes in Chiniak who were not included in the February 2006 count of residents. This count is an estimate; it is possible that a few people were excluded. It is also unknown if some of the retired residents claim residency elsewhere (Armstrong 2006*b*).

1) Are the communities in proximity and road-accessible to one another?

Chiniak is connected by road 45 miles from the City of Kodiak, although the 14 miles nearest Chiniak are unpaved. The road winds and is slow in the winter and when road conditions are bad. The trip to Kodiak can take more than an hour (Armstrong 2006*b*).

2) Do they share a common high school attendance area?

Chiniak has its own school, kindergarten through 10th grade. Students in the 11th and 12th grades can choose to either study through correspondence or take a bus into Kodiak to attend grades 11 and 12. Currently, there are two students in 9th grade at the Chiniak School, one 11th grade student attends the Chiniak School, but studies through correspondence, and two other students attend the Kodiak High School. Thus, of the five high-school aged students, 2/5 attend high school in Kodiak.

3) Do 30% or more of the working people commute from one community to another?

The U.S. Census estimates the percentage of people who commute to work in a different community than where they live by use of an expanded set of questions for a subsample of people. These estimates are less accurate when the population is small, such as for a community like Chiniak, due to statistical properties associated with small sample sizes. A count of the people in Chiniak found that in February 2006, an estimated 47 people were employed: 40.4% (19) were employed in the Chiniak CDP (in the school, library, post office, restaurant, or bakery); 31.9%

(15) in the City of Kodiak; 6.4% (3) off of Kodiak Island; and 17.0% (8) in the Remainder—4 in the Kalsin roadhouse just outside of the Chiniak CDP and 4 in nearby Pasagshak. There were two people (4.3%) for whom work location was unknown. Seven adults didn't work and another 19 were retired (Armstrong 2006*b*). These data were considerably different from the U. S. Census commuting data, which showed that only ten Chiniak residents worked in Chiniak, thus the data collected in February 2006 was considered more accurate.

Recommendations

Option to Group Chiniak CDP in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Chiniak CDP should be included in the Kodiak Area grouping. Chiniak should be grouped in the Kodiak Area because it fulfills the three criteria for grouping: 1) there is a road from Chiniak to the City of Kodiak; 2) the high school goes to grade 10 and two-fifths of the high school-aged children attend school in Kodiak; and 3) 31.9% of the working population commute into the City of Kodiak. The criteria specified for grouping did not account for distance and the quality of road, nor partial attendance in high school. It should be noted, therefore, that the information indicates a borderline situation. The distance to Chiniak is 45 miles and the 14 miles closest to Chiniak are unpaved; there are only two students attending 11th and 12th grades in Kodiak; and the number of residents who commute is just over 30%. As these criteria were close, other factors were looked at as well. Chiniak has no stores, gas stations, or other amenities—it only has a restaurant, bakery, small school, post office, and library—thus indicating further economic ties to the City of Kodiak and that it should be grouped in the Kodiak Area.

Option to Not Group Chiniak CDP in the Kodiak Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the Chiniak CDP should not be included in the Kodiak Area grouping because it does not completely fulfill the three criteria for grouping: 1) there is a road from Chiniak to the City of Kodiak, but it is a minimum of a one-hour trip, and the 14 miles closest to Chiniak are unpaved; and 2) there is a partial high school in Chiniak to grade 10, and only two-fifths of the high school-aged children attend school in Kodiak. The criteria specified for grouping do not account for distance and the quality of road, nor partial attendance in high school.

Consideration was also given to those living in Pasagshak, which is equally far from the City of Kodiak as Chiniak (**Map 10**). Pasagshak is part of the Remainder area, and it is unknown how many people live there. There are a number of homes, the Launch Site, and two ranches. There is a road connecting Pasagshak with Kodiak City (most of it until the end is paved), and students attend high school in Kodiak City. Without being able to break out the population of Pasagshak from the Remainder, it is unknown how many of the people who live in Pasagshak work in Kodiak City, the Coast Guard Station, in Pasagshak, or somewhere else in the Remainder area. If Chiniak is not grouped with the Kodiak Area, consideration may need to also be given to not including Pasagshak as well.

Table 3. Kodiak Area population, 1988, 1990, 2000, and 2005 (ADOL1989; U.S. Census 1990, 2000; ADOLWD 2006).

	1988	1990	2000	2005
Kodiak City	6,651	6,365	6,334	6,088
Kodiak Station CDP	1,709	2,025	1,840	1,975
Womens Bay CDP	N/A[a]	620	690	703
Kodiak Island Census Subarea Remainder[b]	4,159[c]	3,220	3,991	3,998
Chiniak	135	69	50	52
Total Kodiak Area	12,654[d]	12,229	12,905	12,816[e]

[a] Women's Bay was not a CDP until 1990.

[b] Population within the Kodiak Island census subarea remainder not attributed to Kodiak City, Kodiak Station CDP, Women's Bay CDP, or other named place. Most of the people in the Remainder live within the area connected by road to Kodiak City, except for about 350 residents in 2005.

[c] In 1988, this included the Women's Bay CDP, which was not designated until 1990.

[d] The Remainder should have been included in the Kodiak Area grouping for the 1990 analysis (using 1988 population estimates), but wasn't. In the 1990 analysis, the total population for the Kodiak Area was estimated to be 8,495 because the Remainder population was excluded.

[e] An estimate of the number of people living in the Remainder, but not on the road system (350), is available for 2005 only. That estimate (350) subtracted from the Kodiak Area population of 12,816 in 2005 would yield an estimate of 12,466 people for 2005.

What are the boundaries of the Kodiak Area?

If the Kodiak Station CDP, Chiniak CDP, and Pasagshak portion of the Remainder area are included in the Kodiak Area grouping, that area should be defined as including all people living on the road system connected to the City of Kodiak. For the purposes of the analysis that follows in the next section of this report, and comparisons made thereafter, this is the scope of the grouping meant by use of the term "Kodiak Area." If the Board decides to not include the Kodiak Station CDP, and/or the Chiniak CDP and Pasagshak portion of the Remainder area, in the Kodiak Area grouping, the population estimate for the Kodiak Area grouping would decrease accordingly. Population of these grouping components are detailed in **Table 3** and discussed in the analysis that follows.

Kodiak (Road System) Area: Rural/Nonrural Analysis

Background

In 1988, the Alaska Joint Board of Fisheries and Game determined that Kodiak was rural. The long history of the community, the large Native population, and the relatively high harvest of subsistence resources were considerations given by the Alaska Joint Board of Fisheries and Game when the first determination of Kodiak as a rural community was made. The decision was not unanimous and there was considerable time spent comparing Kodiak with other communi-

ties, such as Dillingham and Ketchikan, but the final decision was based on ADF&G, Division of Subsistence data and public testimony indicating the high level of participation in hunting and fishing activities and high per capita subsistence harvest levels compared with nonrural places (Fall 1988). The Federal Subsistence Board (Board) faced the same dilemma in 1990, whether or not a community with a population larger than 7,000 should be determined to be rural, but ultimately the Board also determined that Kodiak should be considered rural. The Board, too, was swayed by public testimony that again indicated the high level of participation in hunting and fishing subsistence activities and high per capita harvest levels compared to nonrural places.

History

Kodiak Island has been inhabited by Alaska Natives for at least 8,000 years. The first non-Native contact occurred in 1763 with Russians. The Russians settled in what is now the City of Kodiak in order to harvest sea otters. At that time there were approximately 6,500 Suq'piaq Natives living in the area. The Russian colonization devastated the Suq'piaq. In 1882, a fish cannery opened on Karluk spit and development of the commercial fishery began. World War II brought military development and a Navy base to Kodiak Island and eventually, in 1972, the establishment of the Coast Guard Kodiak Station outside of the City of Kodiak (ADCA 2006). The City of Kodiak is at the northeastern tip of the island. The city is the economic, transportation, and governmental center of the area, located within the Kodiak Island Borough (Kodiak Chamber of Commerce 2005). The 1964 earthquake and subsequent tidal wave destroyed downtown Kodiak. The community was rebuilt and by 1968 the City of Kodiak had become one of the largest fishing ports in the United States (ADCA 2006). In 2000, Kodiak ranked as the number three commercial fishing port in the United States in terms of the value of seafood landed (Kodiak Chamber of Commerce 2005).

The largest local Native tribe, the Sun'naq Tribe, was Federally recognized in 2001. Today there are 1,400 members of the Sun'naq Tribe (Skinner 2006, pers. comm.). The Woody Island Tribal Council (Federally registered as the Leisnoi Village [*Tanginaq* in Alutiiq]) and the Native Village of Afognak, also Federally recognized tribes, maintain their offices in Kodiak, close to their traditional homelands of Woody Island and Afognak Island. Both tribes traveled historically to the Kodiak Area for harvesting subsistence resources. The Woody Island Tribe annually migrated to the Buskin River area for fish camp and utilized many other areas of Kodiak Island for subsistence (Simeonoff 2006, pers. comm.). Not all tribal members register with the tribes, but most Natives receive services from the Kodiak Area Native Association. Approximately 5,475 Natives in the Kodiak Area receive medical services from KANA (DeVeau 2006, pers. comm.).

Transportation

Kodiak is served by multiple daily air service and twice-weekly ferry service (ADCA 2006). The island is remote and expensive to travel to by plane (from $286 to $524 for a three week advance purchase roundtrip ticket from Anchorage, depending on date and flexibility). The remoteness of the island and inclement weather can affect scheduled airline access. There are currently two commercial airlines with regular scheduled service between Anchorage and Kodiak. Travel time to Homer by ferry is 12 hours (ADCA 2006) and by air to Anchorage is 50 minutes by jet (Kodiak Chamber of Commerce 2005).

The Port of Kodiak includes two boat harbors with 600 boat slips and three commercial piers (ADCA 2006). Roads connect the people living outside of the City of Kodiak to the city (Kodiak Alaska Emerald Isle 2006).

Demographics

The population of the Kodiak Area in 2000 was 12,905, which is the sum of the City of Kodiak, Kodiak Station CDP, Women's Bay CDP, Chiniak CDP, and the Remainder (**Table 3**; U.S. Census 2000). The Remainder does not include residents of communities or CDPs. A percentage of the Remainder lives off of the road system. It is not known how many people in the Remainder lived off of the road system in 1988, 1990, or 2000. The corresponding population estimate for the Kodiak Area in 2005 is 12,816 (**Table 3**). However, in 2006, Kodiak Island Borough staff estimated that there were 350 of the Remainder population not living on the road system (Ogle 2006, pers. comm.). The best total estimate for the population of the Kodiak Area in 2005 therefore, is 12,466—which excludes the estimated 350 residents living outside of the road-connected portion of the Remainder area (**Table 3**). However, when comparing population estimates for the Kodiak Area across years, the number 12,816 should be used for 2005, which includes the estimated 350 people living out of the road-connected area, since that population component is unknown for the other years.

The Kodiak Area rural analysis in 1990 was based on population estimates for 1988 from the Alaska Department of Labor, because the 1990 U.S. Census was not yet available. The analysis was of the City of Kodiak (population 6,651), the Coast Guard Station (1,709), and Chiniak (135), which totaled 8,495. However, the 1990 analysis neglected to include the Remainder in the Kodiak Area grouping, which in 1988 was 4,159 people. Women's Bay CDP did not exist as an independent census unit in 1988 and was included in the Remainder. If the Remainder area had been grouped in the Kodiak Area in the 1990 analysis, the population would have been 12,654 (not 8,495). In 2005, the population of the Kodiak Area was 12,816. Thus, the estimated population in 2005 was only 162 residents more than the population in 1988. The increase came entirely from the Coast Guard Station which increased from 1988 to 2005 by 266 (**Table 3**).

The population of the Kodiak Area in 1990 was 12,229 (U.S. Census 1990; **Table 3**). The population in the Kodiak Area grew about 5.5% from 1990 to 2000, but the population decreased slightly by 89 residents (less than 1%) from 2000 to 2005 (from 12,905 to an estimated 12,816) (**Table 3**). From 2000 to 2005, the population in Kodiak City is estimated to have decreased by 246 (from 6,334 to 6,088), but increased slightly in Women's Bay CDP (by 13 residents) and the Remainder (by 7 residents). The Coast Guard Station increased by 135 residents from 2000 to 2005 (**Table 3**).

The slight decrease in population in Kodiak City, Women's Bay, and the Remainder area from 2000 to 2005 may be due to the loss of jobs associated with crab rationalization (Knapp 2006) (see discussion below on crab rationalization). Another factor associated with shifts in population that has been brought up by the public is the movement between the villages on the island and the Kodiak Area. The reasons people come into Kodiak include seasonal work and medical care. This movement back and forth is fairly fluid as the people in the Kodiak Area are very connected

to the people in the villages, particularly the Natives and long-term non-Natives (Holmes 2006, pers. comm.).

The population density estimate for Kodiak City (not the Kodiak Area) in 2000 of 2.39 (**Figure 9**; **Appendix C**) was higher than the densities reported for the rural places and the three smallest of the nonrural places being compared (Valdez, Seward CDP, and Homer CDP), lower than the densities reported for the other nonrural places being compared, and similar to that of Ketchikan City, currently considered nonrural.

The population in the Kodiak Area in 2000 was the 7th highest in the state, considering community groupings as defined by the Board, falling below the nonrural Ketchikan Area (13,639), and above the nonrural Homer Area (9,701). However, the Kodiak Area population has decreased slightly since 2000 and only increased by 1.3% since 1988, whereas the population has increased for most nonrural areas of the state, except for Ketchikan, Seward, and Valdez. Some of the nonrural places have increased dramatically in population. For comparison, from 1990 to 2005, the Juneau Area increased 17% (from 26,751 to 31,193); the Homer Area increased 61% (from 6,317 to 10,166); and the Wasilla Area, the area of greatest growth in the state, increased 315% (from 14,899 to 61,872) (OSM 2005*b* and **Appendix A**).

Members of the public have suggested that the Coast Guard Station's population should be excluded from the Kodiak Area population because it is a military enclave and the base residents do not have long-term residency (in a study in 1993 no one had lived there more than nine years). However, duration of residency is not a factor in addressing grouping or rural/nonrural status of communities in the Federal subsistence management program. The Coast Guard has 1,200 military and civilian personnel and 1,700 military dependents (Kodiak Chamber of Commerce 2005). Of these, 1,975 lived within the Kodiak Station CDP in 2005 (**Table 3**). Without the Coast Guard Kodiak Station CDP, the population of the Kodiak Area would be estimated at 10,945 in 1988; 10,204 in 1990; 11,065 in 2000, and 10,841 in 2005. Currently, there are also about 275 Coast Guard military and their families living off of the Coast Guard Station with homes in the Kodiak Area (Lachowsky 2006, pers. comm.).

The public also has raised concerns about the high number of transient/nonresident workers in Kodiak. Nonresident workers are not counted in the permanent population estimates and would not be able to hunt or fish under Federal subsistence regulations until they have lived in Alaska for a year. There are a fairly high number of nonresidents working in Kodiak—25% of the workforce in the private sector (out of 1,542 jobs). The percentages statewide are also high—18%, due to the oil, fishing, and timber industries (Hadland et al. 2006:19).

Economy

The Kodiak Area economy is based on fishing, seafood processing, retail services and government. The Coast Guard Station and other government employment provided 35% of all of the jobs in the Kodiak Area in 2005. The fishing industry comprised 27% of the jobs in Kodiak in either the harvesting or processing sectors. Retail trade, transportation, and utilities accounted for 11%, education and health 7%, financial information, professional and business 6%, leisure and

hospitality 6%, natural resources and construction 4%, and other services 3% (Kodiak Chamber of Commerce 2005).

The largest Coast Guard Station in the U.S. is just south of the City of Kodiak (**Map 10**). The Coast Guard Station directly employs a total of approximately 1,300 military, civilian, and private contractor personnel (Kodiak Chamber of Commerce 2005, Lachowsky 2006, pers. comm.). The Kodiak Launch Complex, which is a $38 million low-Earth orbit launch facility, was recently completed at Narrow Cape near Chiniak—they celebrated their first launch in 1998. The Launch Complex is operated by the Alaska Aerospace Development Corporation (ADCA 2006).

Other industries of importance in Kodiak are the tourist industry, which has remained stable in the past five years, and the timber industry. Two forest products companies operate within the Kodiak Island Borough, one of which has decreased production dramatically due to decreasing lumber prices in Asia (Kodiak Chamber of Commerce 2005).

Fishing

The Port of Kodiak is homeport to more than 700 commercial fishing vessels. Kodiak is Alaska's largest fishing port and is home to some of Alaska's largest trawl, longline, and crab vessels. Kodiak is one of the top commercial fishing ports in the country. Kodiak also is one of the most diversified fishing ports in Alaska. Area residents hold 1,158 fishing permits and participate in 27 different fisheries, not including the numerous groundfish categories, which are lumped together in a single category. Approximately 650 area residents are employed by the fishing industry. Kodiak's processing plants employ approximately 1,375 people. The groundfish industry (pollock and cod) has been increasing in importance from a wholesale value of $23.5 million in 1986 to more than $34 million in 2004. Salmon has traditionally been the mainstay of Kodiak's fisheries. The cyclic nature of the salmon fishery and the increased competition in world markets have driven salmon prices to new lows from the ex-vessel value of $53 million in 1995 and $25 million in 1996 to $18.6 million in 2004 (Kodiak Chamber of Commerce 2005). The total number of salmon permits has declined 40% in the past ten years, and the number of purse seiners operating was down 60% in 2005 (Dinnocenzo et al. *In Press*).

In 2005, the North Pacific Fishery Management Council (NPFMC) developed the Crab Rationalization Program, which is a limited access system that allocates Bering Sea-Aleutian Islands crab resources among harvesters, processors, and coastal communities. The program addresses conservation and management issues associated with the previous derby fishery, reduces bycatch and associated discard mortality, and increases the safety of crab fishermen by ending the race to harvest. The NPFMC developed the program based on their experiences with the halibut and sablefish Individual Fishing Quota program (often referred to as "IFQ") and the American Fisheries Act cooperative program for Bering Sea pollock (NOAA 2006).

It is too early to evaluate the full effects on the economy of crab rationalization since it was just instituted in 2005. The effects to date are broad, very complex, difficult to measure, and have been very rapid and dramatic. The crab fleet has been consolidated and there has been a dramatic decline in the number of crab fishing jobs. The remaining crab fishing jobs are different due to longer seasons, more income for those working, more certainty about their income, and lower

earnings per day fishing. Currently there is not enough information to measure the economic effects with any precision. Between 2004 and 2005, the number of Kodiak boats which fished for Bristol Bay red king crab dropped 57% from around 54 to 23. The number of Kodiak residents who lost crab fishing jobs was probably between 100 and 200. Rationalization also has cut into business sales to crab boats and crab fishermen. The total sales of Kodiak businesses declined by 2% from 2004 to 2005, and this may have been due in part to rationalization. For those people who lost their jobs, crab rationalization is having a very big impact (Knapp 2006). The loss of jobs could translate into a decrease in the population.

Unemployment

The unemployment rate in the Kodiak Area in 2000 was 4.3%, which was lower than for any of the nonrural places being compared (**Appendix A**). However, the cyclical nature of fishing causes large swings in monthly unemployment rates. The average unemployment rate in 2004 was 9.7%, more than a 5% increase since 2000 (Kodiak Chamber of Commerce 2005). In 1988, the unemployment rate in the Kodiak Area was 6.1% (**Appendix B**). Comparing unemployment rates from 1988 to 2000, many of the unemployment rates were higher in 1988 than in 2000 (**Appendices A and B**).

Per Capita Income

The per capita income for the Kodiak Area in 2000 was $22,784, which was more than for the nonrural areas of Homer ($21,080), Seward ($21,281) and Kenai ($21,372), but less than for the nonrural areas of Ketchikan ($24,290) and Valdez ($27,341), and less than for the rural communities of Whittier ($25,700), Cooper Landing ($24,795), and Cordova ($25,256) (**Appendix A**). In Kodiak, 7.4% of the population was below the poverty level in 2005 (ADCA 2006).

In 1988, the per capita income for the Kodiak Area was $20,837, which was similar to that of the Homer Area ($20,052), but less than that of Sitka ($22,589), the Ketchikan Area ($23,008), and the Seward Area ($21,579). In 1988, only Wrangell, Homer, Hope, and Ninilchik had lower per capita incomes than the Kodiak Area of the communities in the analysis (**Appendix B**).

Cost of Food

The cost of food index in 2000 in Kodiak was quite high, $147.77. The only nonrural area with a higher cost of food index was the Homer Area with $150.46. The cost of food index in other nonrural areas was approximately 20% lower (**Figure 4**). The cost of food index was also lower in rural Sitka (133.81), but higher in other rural communities being compared (**Figure 4**). The public in Kodiak has raised concerns regarding not only the high cost of food, but also more generally the high cost of living in Kodiak. These cost of living figures were not used in this analysis because there weren't comparable data for other representative communities across Alaska as are included in this report.

Comparatively, in 1988, the cost of food index in the Kodiak Area ($130) was higher than in nonrural areas such as the Municipality of Anchorage ($102), the Fairbanks North Star Borough ($114), the Wasilla Area ($117), the Kenai Area ($113), the Juneau Area ($120), Valdez ($117),

the Homer Area ($124), and the Ketchikan Area ($120). The cost of food index was also lower in rural Sitka ($111) and Petersburg ($122), but higher in Bethel ($182), Nome ($174), and Kotzebue ($206) (**Appendix B**). Comparing the cost of food index between 1988 and 2000 indicates a similar pattern, with the cost of food in Kodiak being higher than in almost all nonrural areas as well as higher than in rural Sitka.

Local Businesses

Kodiak has a wide range of support services for the fishing and visitor industries. The introduction of a large national retailer (**Figure 8**) has provided greater selection of merchandise (Kodiak Chamber of Commerce 2005), but has also brought the demise of small businesses. There are two auto dealers, four hotels with a total capacity of 274 guests, and a variety of restaurants (Kodiak Chamber of Commerce 2005), including several fast food restaurants (Armstrong 2006*b*).

Infrastructure

Pillar Creek and Monashka Creek reservoirs provide water within the city limits. Piped sewage is processed in a treatment plant. All homes within Kodiak City limits are plumbed. Many homes outside of the city limits have wells and septic systems. Refuse is collected by the borough and there is a landfill north of the city. Kodiak Electric provides electricity from power purchased from the Four Dam Pool owned by Terror Lake Hydroelectric Facility.

The City of Kodiak has a police department and a fire department. Health care is provided by the Providence Kodiak Island Medical Center, the Alutiiq Health Clinic, and the Kodiak Community Health Center. Members of the U.S. Coast Guard and their families receive health care from the Rockmore-King Medical Clinic. The City of Kodiak has a swimming pool at the high school, a 300 seat movie theater, library, two museums, bowling alley, bingo hall, and teen hall (ADCA 2006; Kodiak Chamber of Commerce 2005). The Coast Guard Station has a number of recreation facilities: a ten lane bowling alley, a 398 seat movie theater, a gym with a full size basketball court, an Olympic size swimming pool, a fitness facility as well as a sledding hill and a nine-hole golf course (Kodiak Chamber of Commerce 2005; Lee 2006, pers. comm.).

Education

There is one public high school in the City of Kodiak that serves the entire road-connected area. The Kodiak Island Correspondence school for grades K through 12 serves the entire island with about 20 students in attendance. There are three public elementary schools and one junior high school that serve the City of Kodiak and the Kodiak Area, with the exception of the Coast Guard Station that has its own elementary school, and Chiniak that has a school for grades K through 10 (ADCA 2006). There are also two private elementary schools. Kodiak College is a public, two-year campus of the University of Alaska Anchorage. The college offers an array of educational options, from transfer degrees (associate degrees) to technical training and personal enrichment courses. There are approximately 1,000 full and part-time students each semester (Kodiak College 2006).

Table 4. Kodiak Area subsistence harvest and use information (ADF&G 2001; Fall and Utermohle 1995).

	Kodiak City[a]	Road System[b]	Coast Guard Station[b]
% HH Use	99	96	100
% HH Receive	97	92	81
% HH Give	84	78	58
Per capita pounds harvested	151	168	115
Weighted average of per capita pounds harvested of all three areas: 155			
Weighted average of per capita pounds harvested of only Kodiak City and the Road System: 158			

[a] Data from 1993; this year is considered by ADF&G to be the most representative year of data for Kodiak City.

[b] Data from 1991, the only year of data for the Coast Guard Station and the Road System.

Use of Fish and Wildlife

Subsistence continues to be a strong and viable element of Kodiak culture and lifestyle (Fall and Utermohle 1995) and forms a large part of the identity of long-term Kodiak residents. Subsistence use studies were conducted by ADF&G for the City of Kodiak in 1982, 1991, 1992, and 1993 and separately in 1991 for the Kodiak Coast Guard Station and people living on the road-system outside of the city limits. These studies found that Kodiak residents rely on subsistence harvested foods that provide a significant portion of their diet throughout the year. Kodiak residents harvest all species of salmon, halibut, various species of nonsalmon fish and shellfish, ducks, seals, deer, mountain goats, brown bear, elk, snowshoe hare, feral rabbits, waterfowl, berries, mushrooms, and plants (ADF&G 2001).

There was no change from 1982 to 1993 in the pounds per capita harvested for households from the City of Kodiak, with 148 pounds per capita estimated harvested in 1982 and 151 in 1993 (Fall and Utermohle 1995:X-17). The subsistence harvest data from 1993 is considered the most representative for the City of Kodiak. Per capita harvests were highest for people living in the City of Kodiak (151 pounds per capita) and the residents outside of the city living along the road system (168 pounds). The per capita harvests of the Coast Guard Station residents were the lowest (115 pounds) (**Table 4**; ADF&G 2001), which would be expected since these residents generally are transferred every two to three years (Volpe 2006, pers. comm.). Another difference between the Coast Guard Station and the other two areas can be found in the amounts shared in both the giving and the receiving. The sharing of subsistence resources by households is significantly lower on the Coast Guard Station at 58%, compared to 84% in Kodiak City and 78% on the road system (ADF&G 2001; Fall and Utermohle 1995).

In conducting subsistence household surveys, researchers do not ask under what regulations the resources were harvested—sport, commercial, or subsistence, thus this information is not available from household use surveys. This information can be gleaned, however, from subsistence salmon permit information and gear type reported from household surveys. There are substantial

differences between the Coast Guard Station and the City of Kodiak in the amount of salmon harvested with subsistence salmon permits. For example, in 2004, Kodiak City residents returned 1,521 subsistence salmon permits, whereas Coast Guard Station ("military housing") residents returned only 55 (ADF&G 2004). The Coast Guard Station residents also primarily used rod and reel to harvest fish (93.5%), whereas 66% of Kodiak City residents used rod and reel. Other gear accounted for 26%, and commercial catch retention 14%. For the Kodiak road system, 78% used rod and reel, 34% other gear, and 28% commercial catch retention (ADF&G 2001). The low rate of use of subsistence salmon permits, and the high rate of rod and reel gear use, point to significant differences in fish harvests between those living on the Coast Guard Station and those living in Kodiak City and on the road system.

The weighted average per capita subsistence harvest of all resources for the Kodiak Area is 155 pounds; the weighted average excluding the Coast Guard Station is similar at 158 pounds (**Table 4**). Per capita harvest of all resources for the Kodiak Area is greater than for the nonrural areas and communities of Valdez (103), Seward Area (97), Homer Area (94), and Kenai Area (84)is similar to the level in the rural communities of Cordova (179), Ninilchik (164), and Wrangell (155), and well above the level in the rural communities of Hope (111), Cooper Landing (92), and Whittier (80) (**Figure 6**; **Appendix A**).

Kodiak Area residents use a larger variety of species (11.8) than the nonrural communities and areas of Valdez (6.5), the Kenai Area (7.1), the Seward Area (7.5), and the Homer Area (8.8), more than the rural communities of Whittier (8.0), Cooper Landing (8.3), Ninilchik (8.6), Hope (9.1), and Dillingham (11), and less than rural Cordova (14.4) and Kotzebue (15.0) (**Appendix A**). The use of fish and wildlife resources in the Kodiak Area, at 99%, is characteristic of the level of use found in most communities where household surveys have been conducted (**Appendix A**).

Considering only the harvest of salmon and large land mammals for subsistence, the weighted Kodiak Area per capita average of 73 pounds was greater than for any of the nonrural communities or areas being compared (**Figure 7**).

ADF&G subsistence household use studies (Fall and Utermohle 1995) found that 25% of the City of Kodiak residents are newcomers, and Coast Guard personnel are generally transferred every three years. Fall and Utermohle (1995) noted that it generally takes living in a community two to three years before people begin adapting to the subsistence harvest lifestyle because it takes time to learn about gear, places to harvest, regulations, etc. Given the high turnover rate for the Kodiak Station CDP, as discussed in the earlier section on the grouping analysis, one would expect that they would not have the same long-term, deep cultural traditions of dependence on a subsistence lifestyle that would be found with people who have been in the area for generations. The high cost of food in Kodiak has likely contributed to the adoption by newcomers of a lifestyle of harvesting food for subsistence. Kodiak has a high cost of living which makes dependence on subsistence more critical.

Recommendations

Rural Option

The Kodiak Area should retain its rural determination. When the Board made its rural determinations in 1990, population estimates from 1988 were used. As discussed in the section on demographics above, the 1990 analysis included the City of Kodiak, the Coast Guard Station CDP, and Chiniak CDP, which totaled 8,495. However, that analysis did not include the Remainder population in the Kodiak Area grouping, which in 1988 was 4,159. The population of the Kodiak Area in 1988, if grouped as proposed here, would be estimated at 12,654. The comparable estimate for 2005 is 12,816—an increase of only 162 people. The Coast Guard Station has increased by 266 residents from 1988 to 2005, thus the overall increase can be attributed largely to growth on the base. The marginal overall growth of 1.3% since 1988, which includes a more recent downturn since 2000, is in contrast to most nonrural areas of the state, which have typically shown substantial growth. For comparison, from 1990 to 2005, the Juneau Area increased in population from 26,751 to 31,193 (17% growth); the Homer Area from 6,317 to 10,166 (61%); and the Wasilla Area, the area of greatest growth in the state, from 14,899 to 61,872 (315%) (OSM 2005*b* and **Appendix A**).

Kodiak has many social and economic characteristics of other rural communities. The unemployment rate, although low (4.3%) in 2000, was up to 9.7% in 2004. Per capita income is less than in the rural communities of Sitka, Cooper Landing, Whittier, Cordova, Nome, and Barrow and less than in the nonrural Ketchikan Area, Municipality of Anchorage, Juneau Area, and Valdez. The cost of food index is higher than in rural Sitka, and all of the nonrural areas being compared, other than the Homer Area. Another economic factor to be considered is the effect of crab rationalization instituted in 2005. It is too early to tell what the ramifications will be, but early indications point to a loss of jobs from crab rationalization (Knapp 2006).

Kodiak has some characteristics of a small town such as a two year college, a large national retailer, car dealerships, fast food restaurants, and roads linking the outlying surrounding area, but the character of the community is similar to other rural Alaska communities. The community is isolated on an island with no road access. Inclement weather can strand residents for days. It is expensive to leave the island to go shopping and seek medical care.

The high level of subsistence harvest was a key characteristic the Alaska Joint Board of Fisheries and Game considered in the late 1980s and the Federal Subsistence Board in 1990 to designate the Kodiak Area as rural. The 155 pound weighted average per capita harvest of all resources for the Kodiak Area is substantially more than in the rural communities of Whittier (80), Cooper Landing (92), and Hope (111), and the nonrural communities and areas of Valdez (103), Seward Area (97), Homer Area (94), and Kenai Area (84), and was similar to the levels estimated for the rural communities of Wrangell (155), Ninilchik (164), and Cordova (179).

The Coast Guard base is economically integrated into the Kodiak economy, but 80% of those living in the Kodiak CDP in 2000 lived elsewhere five years earlier. Most tours of duty are two years for single people and three years for families. Fall and Utermohle (1995) noted that it generally takes living in a community two to three years before people begin adapting to the sub-

sistence harvest lifestyle because it takes time to learn about gear, places to harvest, regulations, etc. There are people who extend their tours, but they mostly live off base. The number of Coast Guard who live off base are few (275) compared to those who live on base (1,900) (Lachowsky 2006, pers. comm.). Short-term residents would not be expected to share the subsistence lifestyle of long-term Kodiak residents. Those living on base can meet their needs for housing, healthcare, entertainment, recreation, and shopping on base.

Based on the marginal population growth since 1988 (1.3%) and the decreasing population in all areas except the Coast Guard Station, the high cost of food, remoteness, and the high use of subsistence resources, no change should be made to Kodiak's rural determination.

Nonrural Option

The population of the Kodiak Area—estimated at 12,466 in 2005—is well above the presumptive nonrural population of 7,000 in Federal regulations. The nonrural Ketchikan Area (12,720) has a slightly higher estimated population than the Kodiak Area (12,466) for 2005. The per capita income is close ($22,784 for Kodiak compared to $24,290 for Ketchikan), and both communities have two year colleges, high diversity of services, a large national retailer, fast food restaurants, and roads linking the outlying area to the city. The per capita income is higher in Kodiak ($22,784) than in nonrural Seward ($21,281) and Homer ($21,080). The cost of food index is lower in the Kodiak Area ($147.77) than in the nonrural Homer Area ($150.46).

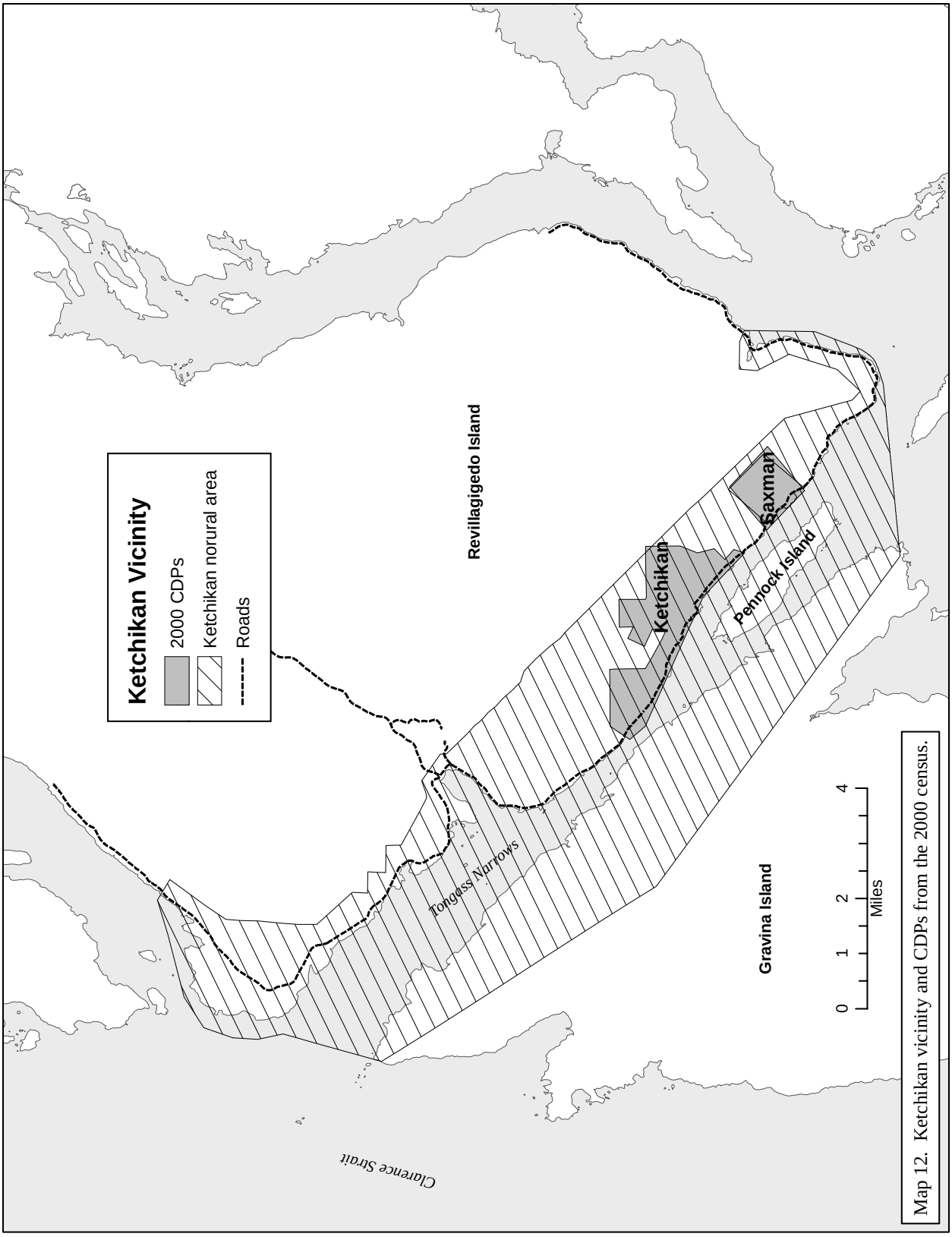
The Kodiak Area is 39% larger in population than the next largest rural place, Sitka, and its use of fish and wildlife is 24% lower. It is 23% greater in population than the population of the nonrural Homer Area, and 43% greater than the population of the Seward Area and Valdez combined, both of which are nonrural. The Board may have missed this perspective in 1990 because the Remainder area was not included in the Kodiak Area grouping.

While the weighted average per capita harvest of all subsistence resources is higher in the Kodiak Area (155 pounds) than in some other rural areas such as Whittier (80), Cooper Landing (92), and Hope (111), and is close to the level in rural Wrangell (155), Ninilchik (164), and Cordova (179), it is well below the levels in some other rural communities such as Dillingham (242), Barrow (289), and Kotzebue (593).

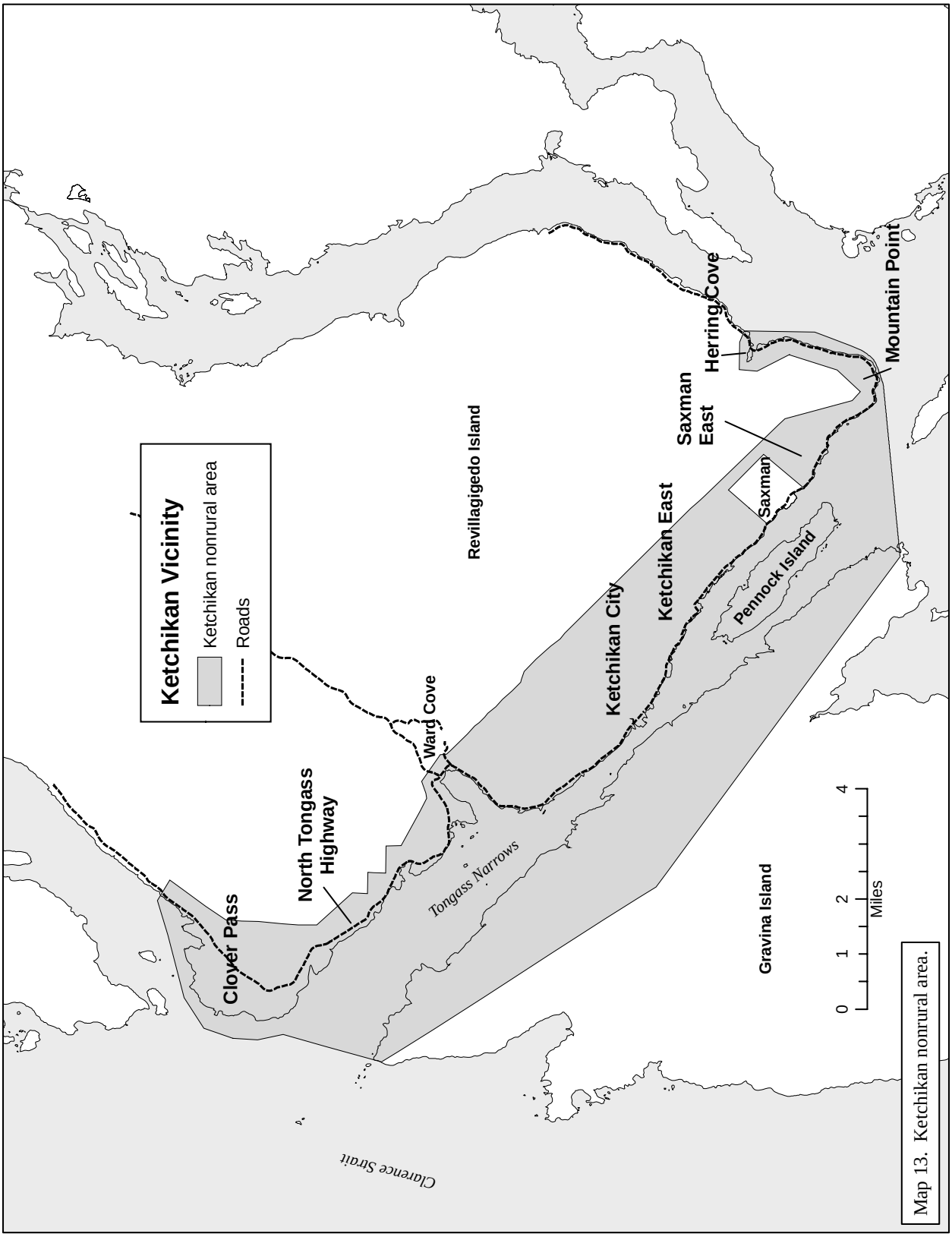
KETCHIKAN AREA

Ketchikan Area: Grouping

The area under consideration in this analysis is the City of Ketchikan, the City of Saxman, and residents living outside both city boundaries on the surrounding road system, and on neighboring Gravina and Pennock Islands. In current Federal regulations, the nonrural Ketchikan Area, which excludes Saxman, is defined as "including Ketchikan City, Clover Pass, North Tongass Highway, Ketchikan East, Mountain Point, Herring Cove, Saxman East, Pennock Island, and parts of Gravina Island" (**Map 12**). This description used CDPs that existed in 1980; however, these CDPs are no longer used. In 2000, there were only two census areas and no CDPs in this



Map 12. Ketchikan vicinity and CDPs from the 2000 census.



Map 13. Ketchikan nonrural area.

vicinity: the City of Ketchikan and the City of Saxman. Additionally, the people living outside of the cities of Ketchikan and Saxman are referred to by the U.S. Census as "Remainder of Ketchikan census subarea" (**Map 13**). The definitions of the CDPs were based on geographic features and originally the outer CDPs were the extent of the road and were used as the descriptors of the nonrural area.

The City of Ketchikan is located on the southwestern coast of Revillagigedo Island, opposite Gravina Island, near the southern boundary of Alaska on the southern end of Alaska's Inside Passage. Ketchikan borders the Tongass National Forest, the nation's largest national forest totaling 17 million acres. It is 235 miles south of Juneau and 679 miles north of Seattle. The City of Ketchikan encompasses only 3.4 square miles of land, but the Tongass Highway extends north of Ketchikan approximately 19 miles and south approximately 11 miles (ADCA 2006).

Should the City of Saxman be included in the Ketchikan Area grouping?

Saxman is located 2 miles south of the Ketchikan City limits along the South Tongass Highway (ADCA 2006). Saxman is an Alaska Native village composed primarily of Tlingit, Haida, Tsimshian, and other Natives (Wallace 2005). In 1886, Tlingits from the old villages of Tongass and Cape Fox wanted to find a site for a new central BIA school and a Presbyterian Church. While searching for a new site, Samuel Saxman, a Presbyterian teacher, was lost at sea. The new village site was located on a protected harbor off the Tongass Narrows and named after Samuel Saxman (ADCA 2006).

Saxman has its own municipal and tribal governments. There are two Federally recognized tribes in Saxman and Ketchikan: the Organized Village of Saxman and the Ketchikan Indian Community (KIC). Saxman has its own water and sewer systems. Health services are provided by an Indian health clinic for the island; Saxman residents cannot receive health services from the Ketchikan Indian Community. Saxman does not receive police protection from the Ketchikan police, but rather is under Alaska State Trooper jurisdiction. Saxman shares electric and telephone utilities as well as a post office with Ketchikan. It is a small area, 1 square mile, with an estimated population of 405 in 2005 (ADOLWD 2006). The only distinguishing feature to indicate the boundary between Saxman and Ketchikan is a sign on the South Tongass Highway. Growth surrounding the City of Ketchikan has visually swallowed the small community of Saxman on the northern and southern Saxman boundaries (Armstrong 2006*c*; ADCA 2006; **Map 12**). Quite a few times the City of Ketchikan has tried to absorb Saxman, but each time the people of Saxman have voted against unifying the governments (Wallace 2005).

Despite the lack of an apparent boundary and the apparent physical integration of Saxman into Ketchikan, the character of Saxman is significantly different from the City of Ketchikan. Saxman is predominantly Native (70%, U.S. Census 2000) and the socioeconomic level is consistently lower than in Ketchikan. There are significantly more people below the poverty level (12% in Saxman, 6.5% in Ketchikan), higher unemployment (22.2% in Saxman, 7.0% in Ketchikan), and a lower per capita income ($15,642 in Saxman and $24,290 in Ketchikan; **Appendix A**).

The harvest of subsistence resources by Saxman residents is greater than that of most other rural communities being compared, and substantially greater than that in the neighboring nonrural

Table 5. Ketchikan Area population, 1980,1988,1990, 2000, and 2005 (ADOL1989; U.S. Census 1990, 2000; ADOLWD 2006).

Area	1980	1988	1990	2000	2005
Ketchikan City	7,196	7,730	8,263	7,922	7,685
Ketchikan Borough Census Subarea Remainder[a]	3,558	4,592	5,196	5,717	5,035
Total Ketchikan Area Excluding Saxman	10,754	12,322	13,459	13,639	12,720
Saxman	273	308	369	431	405
Total Ketchikan Area Including Saxman	11,027	12,630	13,828	14,070	13,125

[a] This is the population within the Ketchikan Gateway Borough census subarea Remainder not attributed to Ketchikan City and Saxman. Most of the people in the Remainder live within the area connected by road to the City of Ketchikan. It is unknown how many do not live on the road system. In 1980, this Remainder subarea was in separate CDPs: Clover Pass, Herring Cove, Ketchikan East, Mountain Point, North Tongass Highway, Pennock Island, Saxman East, and the "balance." The "balance" in 1980 was 334—it is unknown where these people lived.

Ketchikan Area (**Figure 6**). Saxman households average 217 pounds per capita of subsistence-harvested resources a year, which is more the level estimated for eight of eleven rural communities being compared for which comparable data are available, and substantially more than has been estimated for the nonrural Ketchikan Area, which is discussed in more detail later in this report.

Very little has changed about Saxman since 1988 except an increase in population of 31%. In 1988, the data year used in the 1990 Federal rural determination process, Saxman's population was estimated at 308; in 1990 in the U.S. Census estimated 369; in 2000, it was 431; and the estimate for 2005 is 405 (ADOL 1989, U.S. Census 1990 and 2000, and ADOLWD 2006) (**Table 5**).

1) Are the communities in proximity and road-accessible to one another?

Saxman is connected by road to the City of Ketchikan with only two miles between the City of Ketchikan boundary and the City of Saxman boundary. The road is paved and there is no break in development between the two cities.

2) Do they share a common high school attendance area?

Saxman has no schools. All children attend school K–12 in Ketchikan.

3) Do 30% or more of the working people commute from one community to another?

Most employment is in Ketchikan. The City of Saxman, Saxman Seaport, and the Cape Fox Corporation provide some tourist- and timber-related employment. The Saxman Totem Park provides some employment as well; it includes a tribal house, a carving center, and a cultural hall for traditional Tlingit dance exhibitions (ADCA 2006). The Saxman IRA office employs five people (Organized Village of Saxman 2006). The 2000 U.S. Census (ERS 2006) indicated that 64% of workers residing in Saxman commute to Ketchikan for their employment. Another 8% commute to the Remainder area of the borough to work.

Recommendations

Option to Group Saxman with the Ketchikan Area; Rural/Nonrural status dependent on determination for the Ketchikan Area

In applying the grouping criteria as indicators of economic, social, and communal integration, it was found that the City of Saxman should be included in the Ketchikan Area grouping. Saxman fulfills all three criteria and should be grouped with the Ketchikan Area: 1) In terms of proximity and access, Saxman is directly adjacent to Ketchikan, connected by road, and surrounded by the outlying Ketchikan development. Visually, the only distinguishing feature to indicate the boundary between Ketchikan and Saxman is a sign on the South Tongass Highway. Saxman has clearly been overtaken and is surrounded by the geographic expansion of Ketchikan; 2) Saxman students attend high school in Ketchikan; and 3) Sixty-four percent of the workers in Saxman commute to Ketchikan for their employment, and another 8 percent commute to the Remainder area of the borough to work. This significantly exceeds the criteria of 30 percent of workers commuting from one community to another for employment.

Grouping Saxman with the Ketchikan Area would eliminate current problems with neighbors having different rural/nonrural status. The existing divide between the two communities has caused dissension between neighbors and division in the communities.
If Saxman is included in the Ketchikan Area grouping, its rural/nonrural status would be dependent on the determination made for the Ketchikan Area. Consideration of the Ketchikan Area rural/nonrural determination follows in a subsequent section of this report.

Option to Not Group Saxman with the Ketchikan Area; Retain current rural status

In recognition of its current status as separate from the nonrural Ketchikan Area, and rural, the option to maintain the status quo for Saxman is presented here, even though the three criteria for grouping are unambiguous in leading to a recommendation for grouping Saxman in the Ketchikan Area.

There are social and economic characteristics that indicate that Saxman should not be grouped in the Ketchikan Area. Saxman is a small, close-knit community that is socially and politically separate from Ketchikan. The residents of Saxman have two distinct entities to separate themselves from Ketchikan, the traditional government (Organized Village of Saxman) and the municipal government (City of Saxman). While commuting data show that greater than 30% of Saxman workers commute to the Ketchikan Area for employment (64% to Ketchikan City and another 8% to the Remainder area), other socioeconomic indicators suggest distinctions between the two communities. For example, Saxman residents have a higher unemployment rate, lower per capita income, higher percentage of residents below the poverty level than those found in Ketchikan, and is 70% Native. Another distinguishing characteristic of the community is that Saxman residents depend much more heavily on the harvest of subsistence resources. Saxman's average per capita harvest of 217 pounds is substantially more than has been estimated for the Ketchikan Area (see discussion in section on Ketchikan Area's use of fish and wildlife). Thus, while the grouping criteria lead to including Saxman with the Ketchikan Area, the unique socioeconomic characteristics of Saxman indicate that it should remain separate from the Ketchikan Area.

In remaining separate from the Ketchikan Area grouping, Saxman should continue to be considered rural. Saxman is politically separate from Ketchikan. Residents have a long history of a high reliance on subsistence resources; their culture and way of life are interwoven with subsistence. Their harvest of subsistence resources is consistent with that of other areas that have been determined to be rural. They use an estimated average of 217 pounds per capita of subsistence resources; the diversity of resources used is 13, and 97% of households use subsistence harvested resources. These levels are consistent with other rural communities being compared (**Appendix A**). Saxman's unemployment rate (22.2%) is higher and per capita income ($15,642) is lower than the other rural communities of Cordova (6.5%; $25,256), Sitka (7.4%; $23,622), Wrangell (8.5%; $21,851), and Dillingham (7.1%; $21,537).

Should the Remainder area be included in the Ketchikan Area grouping?

The Remainder area is outside of the city limits of Ketchikan and Saxman along the road-system connected to the city, and Gravina and Pennock Islands. This has been the area of the city expansion over the years with approximately 5,035 estimated to be living in this area in 2005. It is unknown exactly how many of these people live off of the road system, but it is not many. Staff at the borough had no way of estimating the number not living on the road system (Ketchikan Gateway Borough 2006, pers. comm.).

1) Are the communities in proximity and road-accessible to one another?

The Remainder area, except for nearby Gravina and Pennock Islands, is connected by road to the City of Ketchikan with no physical boundary at the city limits. Gravina and Pennock Islands are readily accessible by boat, and a ferry operates on a frequent daily schedule to Gravina Island, where the Ketchikan Airport is located. The road is paved and there is no break in development between the city boundaries and the Remainder area. The Remainder to the south is on either side of the boundaries of the City of Saxman.

2) Do they share a common high school attendance area?

All children attend school K–12 in the City of Ketchikan.

3) Do 30% or more of the working people commute from one community to another?

Of residents in the Remainder who work, approximately 64% work in the City of Ketchikan, 32% work in the Remainder, and less than 1% work in Saxman (ERS 2006). Others work around the state.

Recommendation

Group the Remainder with the Ketchikan Area

The Remainder fulfills all three criteria for grouping with the Ketchikan Area: 1) The Remainder, other than nearby Gravina and Pennock Islands, is road-connected to the City of Ketchikan; 2) Students in the Remainder attend high school in Ketchikan; and 3) Over 30% of the workers from the Remainder commute to work in the City of Ketchikan. Presently, most of the Remain-

der is included in the nonrural Ketchikan Area, established in 1990, except for extensions of the highway to the north and south that have since occurred.

What should the boundaries of the Ketchikan Area be?

If the Board determines that the Ketchikan Area should remain nonrural, then a better description of the boundaries is needed. Currently, the boundaries are geographic descriptions of where the Tongass Highway ended in 1990, but the road has been extended beyond that boundary, thus dividing neighbors on either side of the boundary line. If the Ketchikan Area determination changes to rural, then no regulatory description of the area would be necessary, since the regulations only specify the areas that are nonrural. Two recommended options for the boundaries are as follows:

If Saxman is grouped with Ketchikan, then the boundary of the Ketchikan Area should be all people living on the road system connected to the City of Ketchikan, and Pennock Island and parts of Gravina Island.

If Saxman is not grouped with the Ketchikan Area, then the Ketchikan Area should be all people living on the road system connected to the City of Ketchikan, and Pennock Island and parts of Gravina Island, except those people living within the City of Saxman.

Ketchikan Area: Rural/Nonrural Analysis

Background

The Ketchikan Area, which presently excludes the City of Saxman, is currently nonrural in Federal subsistence management regulations. The Alaska Joint Boards of Fisheries and Game first made this determination in 1987; the Federal Subsistence Board also determined that the Ketchikan Area was nonrural in 1990.

Ketchikan was named as an example of a nonrural place in a U.S. Senate Report associated with ANILCA in 1979:

> *Definition of Subsistence Uses*
>
> *Although many residents of cities such as Ketchikan, Juneau, Anchorage, and Fairbanks harvest renewable resources from the public lands for personal or family consumption, by its very nature a "subsistence use" is something done only by Native and non-Native residents of "rural" Alaska. The Committee adopted an amendment to clarify this point by limiting application of the definition to areas of "rural" Alaska including communities such as Dillingham, Bethel, Nome, Kotzebue, Barrow, and other Native and non-Native villages scattered throughout the State. However, the Committee does not intend to imply that the rural nature of such communities is a static condition; the direction of the eco-*

> *nomic development and rural character of such communities may change over time. . . (U.S. Senate 1979: 223).*

As noted in the Senate Report, "the direction of the economic development and rural character of such communities may change over time." At the time of ANILCA, Ketchikan was a growing, prosperous community, but since the late 1990s, the pulp mill closed, which caused a loss of jobs and a drop in the population (discussed below). For this reason, the Board assigned Ketchikan for further analysis in order to evaluate whether the designation should be changed from nonrural to rural.

History

Ketchikan Creek was a traditional fish camp site of the Tongass and Cape Fox Tlingits, which they called *kitschk-hin* meaning the creek of the "thundering wings of an eagle." Later the site became a village. Non-Natives were attracted to the area because of abundant fish and timber resources. In 1885, Mike Martin bought 160 acres from Chief Kyan; the area later became the Ketchikan township. The mouth of Ketchikan Creek was the site of the first cannery in 1886. By 1912, four more canneries were built. The post office was established in 1892 and the city was incorporated in 1900. Nearby gold and copper discoveries brought activities at the turn of the century as a mining supply center. In 1936, there were seven canneries producing 1.5 million cases of salmon. Ketchikan Spruce Mills opened in 1903, which operated for more than 70 years. Spruce was in high demand during World War II, and Ketchikan became a supply area for logging. Ward Cove was the site of a pulp mill constructed in 1954. The mill fueled the growth of the community for 47 years until its contract with the U.S. Forest Service for timber was canceled in March 1997 (ADCA 2006).

Ketchikan has a large Federally-recognized tribe, the Ketchikan Indian Community (KIC), with about 5,161 members (Hawkins 2005; KIC 2006*a*). The KIC has its own social services, including a youth camp to teach young people Native values, traditions, and how to harvest and care for subsistence resources. They have an elder program and a food bank with Native foods for elders. KIC also operates a salmon hatchery, a health clinic, and a medical center (KIC 2006*a*; Hawkins 2005).

Transportation

Ketchikan is served by multiple daily jet air service with three northbound and three southbound departures daily. The airport is on Gravina Island, a short 10-minute ferry ride to the city, with a ferry running every half hour. Ketchikan serves as a regional hub for the surrounding smaller communities in the area, with numerous air taxis to other communities (ADCA 2006) and local ferries connecting Ketchikan to Prince of Wales and Metlakatla (Kolund 2006, pers. comm.). There are four float plane landing facilities. Ketchikan is the first stop in Alaska for cruise ships and Alaska Marine Highway vessels going north and the last stop going south. The Inter-Island Ferry Authority in Craig recently began twice-daily, year-round ferry service between Ketchikan and Hollis (ADCA 2006). There is a new by-pass roadway in Ketchikan allowing for thru-traffic to avoid the city center. The road north has recently been paved further (Armstrong 2006*c*).

Demographics

The population of Ketchikan City in 1980, at the time ANILCA was passed, was 7,196, but this did not include any of the CDPs surrounding Ketchikan that are used in the current definition of the Ketchikan Area: Clover Pass, North Tongass Highway, Ketchikan East, Mountain Point, Herring Cove, Saxman East, Pennock Island, and parts of Gravina Island. With the addition of the population of these CDPs, the total population of the Ketchikan Area in 1980, including Saxman, was 11,027; excluding Saxman, the Ketchikan Area had a population of 10,754 (U.S. Census 1980). Thus, the population of Ketchikan City was approximately 7,000 at the time of ANILCA passage, which was the basis for the presumptive nonrural threshold in regulation, but communities are to be evaluated in the aggregate where warranted, for which the population in the case of the Ketchikan Area was on the order of 11,000. The population of this area in 1990, excluding Saxman, was 13,459 (U.S. Census 1990; **Table 5**).

In 2000, the census did not use the same set of CDPs as had been used in 1980. The only units, smaller than the borough, in place in 2000 were the City of Ketchikan and the City of Saxman. The City of Ketchikan had a population of 7,922. The population in the surrounding area outside of the city limits, not including Saxman, was 5,717. The additional population outside of the City of Ketchikan is referred to by the U.S. Census as the "Remainder of the Ketchikan census subarea," referred to from here forward as Remainder. The census does not indicate where the Remainder population lives, however, estimates from the Ketchikan Gateway Borough are that almost all 5,717 people live on the road system connected to City of Ketchikan. Thus, the City of Ketchikan plus the Remainder totaled 13,639; including Saxman it was 14,070 (U.S. Census 2000; Ketchikan Gateway Borough 2006, pers. comm.) (**Table 5**).

The population in the Ketchikan Area (excluding Saxman) grew by about 180 people (1%), from 1990 to 2000 (13,459 to 13,639), but the population is estimated to have decreased by 919 people (7%), from 2000 to 2005 (13,639 to 12,720).

The population in the Ketchikan Area in 2000 was the 6th highest in the state, considering community groupings as defined by the Board, following the Juneau Area, and ahead of the Kodiak Area (**Appendix A**). In 2005, the population estimate for the Ketchikan Area, excluding Saxman, was below that for the Kodiak Area. The only other nonrural areas in the state with populations declining between 2000 and 2005 were the Seward Area and Valdez. The decrease in Ketchikan's population is thought to be predominantly due to the closure of the pulp mill in 1997.

The City of Saxman had a population of 369 in 1990, 431 in 2000 (U.S. Census 1990, 2000), and an estimated 405 in 2005 (ADOLWD 2006). Currently Saxman is classified as rural and not included in the Ketchikan Area, but if Saxman were to be grouped in the area, Saxman's population would be added to the Ketchikan Area population. The addition of an estimated 405 people would not be significant to the Ketchikan Area rural/nonrural determination (**Table 5**).

The population density estimate for Ketchikan City (not the Ketchikan Area) in 2000 of 2.43 (**Appendix C**) was higher than the densities reported for the rural places and the three smallest of the nonrural places being compared (Valdez, Seward CDP, and Homer CDP), lower than the densities reported for the other nonrural places being compared, and similar to that of Kodiak

City, currently considered rural (**Figure 9**). The population density estimate for Saxman in 2000 of 1.62 was lower than that for Ketchikan City, identical to that for Barrow, and similar to that for Sitka (1.69).

Economy

The Ketchikan Area economy is based on tourism, fishing, fish processing, timber, retail services, and government. The State also operates the Deer Mountain Hatchery which produces over 450,000 Chinook salmon, coho salmon, steelhead, and rainbow trout annually (ADCA 2006). Cruise ships brought 877,054 visitors in 2005 (City of Ketchikan 2005) and approximately 50,000 visitors come independently each year (ADCA 2006). The largest segment of the economy is tourism. Tourism has increased in importance since the closing of the pulp mill (ADCA 2006), but is expected to decrease this summer with 100,000 fewer tourists because of problems with dock space (Kolund 2006, pers. comm). A majority of voters in Ketchikan rejected a $70 million bond package to expand the number of cruise-ship berths last August (ADN 2006), thus the tourism industry is limited by the number of cruise ships that can dock. A limitation with tourism and fishing are that they provide seasonal jobs; with the closing of the mill, a large number of permanent, year-round good-paying jobs with benefits were lost. Most of these jobs also were jobs that heads of households held (Garza 2006, pers. comm.). Since the closing of the pulp mill, the average wage fell from $3,099 a month to $2,764 from 1997 to 2004 (ADN 2006). The fishing industry is stable with prices fluctuating from year to year.

The unemployment rate in the Ketchikan Area in 2000 was 7.0%, similar to the rate for Dillingham (7.1%) and Sitka (7.4%), both of which are considered rural (**Appendix A**), lower than many rural places such as Bethel (8.9%), Nome (10.9%), and Kotzebue (9.8%), but also lower than the unemployment rates of the nonrural Homer (10.4%), Seward (13.0%), and Wasilla (9.9%) areas, and Fairbanks North Star Borough (7.9%). However, the cyclical nature of fishing and tourism causes large swings in the monthly unemployment rates in Ketchikan. Compared to 1988, the pattern of unemployment rates was similar—lower in Ketchikan than in many other nonrural as well as rural communities (**Appendix B**).

A large percentage of Ketchikan workers are nonresidents. In the private sector, nonresident workers comprised 31% (2,237) of the workforce. This percentage is much higher that the state average of 18% (Hadland et al. 2006). These workers are not counted in the permanent population estimates for the community since they do not live permanently in Ketchikan. However, the large percentage of nonresident workers affects the character of the community. In the winter, when these workers are absent and the tourist stores are boarded up, downtown Ketchikan is "dead quiet" (ADN 2006).

The per capita income estimate for the Ketchikan Area in 2000 was $24,290, higher than the levels for rural Sitka ($23,622), Barrow ($22,902), and the Kodiak Area ($22,784) as well as the nonrural Homer ($21,080) and Kenai ($21,372) areas. Only three nonrural communities or areas had higher per capita incomes: the Municipality of Anchorage ($25,287), the Juneau Area ($26,719), and Valdez ($27,341) (**Figure 3**; **Appendix A**). Approximately 7.6% of the people living in the City of Ketchikan are living below the poverty level (ADCA 2006). Comparison of data for 1988 indicate that per capita income was higher for the Ketchikan Area ($23,008) at

that time than it was for rural Sitka ($22,589) and Kodiak ($20,837), but lower than it was for all other nonrural communities in the comparative set except the Homer and Seward areas (**Appendix B**).

The cost of food index in Ketchikan in 2005 ($125.91) was higher than it was for the nonrural Wasilla Area ($120.52), Municipality of Anchorage ($121.50), Juneau Area ($123.60), and Fairbanks North Star Borough ($123.72), but lower than it was for the nonrural Kenai Area ($128.05), Seward Area ($134.34), and Homer Area ($150.46), and rural Sitka ($133.81) (**Figure 4**; **Appendix A**). Comparatively, in 1988, the Ketchikan Area cost of food index ($120) was higher than it was for the nonrural Municipality of Anchorage ($102), Kenai Area ($113), Fairbanks North Star Borough ($114), Wasilla Area ($117), and rural Sitka ($111) (**Appendix B**).

The introduction of a large national retailer (**Figure 8**) has provided a wide selection of merchandise in Ketchikan, but has also brought the demise of some small businesses. There are three auto dealerships in Ketchikan, six hotels, and restaurants, coffee shops, and a large number of (approximately 50) seasonal jewelry stores (ADN 2006; Armstrong 2006*c*).

Infrastructure

Ketchikan has a high diversity of support services. Water is obtained from a dam on Ketchikan Lake. There is a water treatment facility operated by the borough at Mountain Point, south of the city. Some homes use a rain catchment system. The city and the borough both have sewage treatment facilities. Refuse is collected by the city and there is a landfill and incinerator at the landfill at Deer Mountain. Ketchikan Public Utilities purchases power from the state-owned Swan Lake Hydro Facility (ADCA 2006).

Ketchikan has a police department and a fire department. Health care is provided by the Ketchikan General Hospital, the Ketchikan Indian Community Tribal Health Clinic, and the U.S. Coast Guard Ketchikan Dispensary (ADCA 2006).

The City of Ketchikan has a swimming pool at the high school, one movie theater, a library, and two museums (ADCA 2006).

Education

There are two high schools in the City of Ketchikan that serve the entire area. The Ketchikan High School is grades 9 through 12 with 647 students and the Revilla Jr./Sr. High School has grades 7 through 12 with 126 students (ADCA 2006). Ketchikan has a campus that is part of the University of Alaska Southeast. Students can take academic classes as well as receive vocational and technical training (UAA SE 2006).

Use of Fish and Wildlife

No household subsistence harvest studies have been done in Ketchikan by the ADF&G Subsistence Division due to it having been classified as a nonrural area since the implementation of ANILCA. Limited research funds have instead been used to study rural communities. ADF&G (2000) estimated Ketchikan's 1990 subsistence per capita harvest at 33 pounds by reviewing per-

sonal use permits and harvest tickets. This estimate does not include halibut harvests, and other harvests that do not require permits, such as berry picking, thus a per capita harvest estimate based on a more complete assessment would be expected to be higher (ADF&G 2000). No other estimates have been available on contemporary per capita subsistence use levels in Ketchikan.

The KIC received a grant from the BIA in January 2006 to conduct a household subsistence survey in the Ketchikan Area (not including Saxman). Preliminary results from this study are now available (KIC 2006*b*). All figures presented here for Ketchikan are preliminary and subject to change. The preliminary results indicate that in 2005 Ketchikan households harvested an average of 88 pounds per capita of subsistence resources, 80.2% of households use subsistence resources, and households use an average of 8.8 different resources. Considering only salmon and large land mammals, the average per capita harvest from this survey was 73 pounds for the Ketchikan Area, which is 82% of the estimate for the harvest of all subsistence resources combined. Among all of the rural and nonrural communities and areas being compared, only in Dillingham did salmon and large land mammals account for such a large percentage of the overall per capita subsistence harvest.

The estimated per capita subsistence harvest of all resources for the Ketchikan Area (88 pounds) is greater than has been estimated for the nonrural Kenai Area (84), but less than for the other three nonrural communities or areas being compared for which comparable data are available: Valdez (103), Homer Area (94), and Seward Area (97) (**Figure 6**). The only rural community among those being compared with a lower per capita harvest level is Whittier (80). Per capita harvest in other rural communities is generally significantly higher. The weighted per capita harvest estimate for the Kodiak Area of 155 pounds is 76%greater than the Ketchikan Area estimate of 88 pounds. Other rural places had even higher per capita subsistence harvests such as Ninilchik (164), Cordova (179), Petersburg (198), and Sitka (205). Although data on percent of households using subsistence resources, and on number of different resources used, are more incomplete for the communities being compared, the preliminary estimates for Ketchikan appear to be lower than typical for rural communities.

The Ketchikan Area per capita harvest of salmon and large land mammals estimated from this survey (73 pounds) represents a high proportion of the per capita harvest of all resources (88 pounds), and is well above the 33 pounds estimated from permit data in 2000 (**Appendix A**). If the household survey of harvests in 2005 is providing the better estimate, it indicates a higher use of this set of species than for any of the nonrural communities or areas being compared (**Figure 7**).

Recommendations

Rural Option

The Ketchikan Area should be reclassified to rural. Ketchikan is on an island with no road access. From 1980 to 1990, the population in the Ketchikan Area (excluding Saxman) grew significantly by 2,705 people (from 10,754 to 13,459)—it wasn't until the 1990s that the population growth slowed, only growing by 180 people from 1990 to 2000, and then decreasing by 919 people from 2000 to 2005 (from 13,639 to 12,720) (**Table 5**). The decrease in population is in

contrast to most nonrural areas of the state, which have typically shown substantial growth. For comparison, from 1990 to 2005, the Juneau Area increased in population from 26,751 to 31,193 (17% growth); the Homer Area from 6,317 to 10,166 (61%); and the Wasilla Area, the area of greatest growth in the state, from 14,899 to 61,872 (315%) (OSM 2005*b* and **Appendix A**).
In addition to the decreasing population, the economy in Ketchikan has been struggling. The closing of the pulp mill meant a loss of 600 jobs that were permanent, good paying jobs with benefits. Tourism and fishing industry jobs are seasonal and the number of non-Alaskan workers is fairly high.

Nonrural Option

The Ketchikan Area should remain nonrural. The population of the Ketchikan Area was estimated at 13,125 in 2005 (including Saxman) and 12,720 excluding Saxman. Ketchikan possesses many characteristics of a small town and not a rural community; it has a two year college, a large national retailer, car dealerships, fast food restaurants, and roads linking the outlying surrounding area to the city. Although the pulp mill closed, there is still some diversity in the economy with tourism, fishing, fish processing, timber, retail services, and government providing the majority of employment. There is a hospital and a high diversity of services offered. The Ketchikan Area, if Saxman is included, had the sixth highest population in the state in 2005, considering community groupings as defined by the Board—all other areas with higher populations are currently considered nonrural in Federal subsistence regulations. Three areas with smaller populations are classified as nonrural: the Homer Area, Seward Area, and Valdez. The only area that is currently considered rural that has a similar population to the Ketchikan Area is the Kodiak Area, with an estimated 12,466 people in 2005.

Harvest of subsistence resources in the Ketchikan Area, whether estimated from limited permit information, or by application of preliminary results from a recent survey of households, is lower than is characteristic of rural communities.

Based on the population of the Ketchikan Area, the high diversity of services, and the estimated per capita subsistence harvest level and use more consistent with nonrural communities, no change should be made to the current nonrural determination for the Ketchikan Area.

SUMMARY

The Board is expected to develop a proposed rule on potential changes to rural/nonrural determinations in June 2006 as a part of the required decennial review. This report presents the results of the analyses assigned by the Board. Information compiled and presented here led to the following staff assessment of options:

Adak: Consider proposing a change in status from nonrural to rural.

Prudhoe Bay: Consider proposing a change in status from rural to nonrural.

Fairbanks North Star Borough: No changes to this nonrural grouping are recommended for the proposed rule.

Kenai Area: Consider proposing to adjust the boundaries of the nonrural Kenai Area to include all of the current Sterling CDP, and either: 1) exclude Clam Gulch from the Kenai Area nonrural grouping and propose a change in the status of Clam Gulch from nonrural to rural, or 2) propose no change to the current grouping and status of Clam Gulch CDP as part of the nonrural Kenai Area.

Seward Area: No changes to this nonrural grouping are recommended for the proposed rule.

Wasilla Area: Consider proposing to include the Point MacKenzie CDP in this nonrural grouping, which would mean a change in status for Point MacKenzie CDP from rural to nonrural.

Homer Area: Consider proposing that the boundaries of the nonrural Homer Area be adjusted on the northeastern end to include all of the Fritz Creek CDP except for Voznesenka, and consider either including or not including the North Fork Road portion of the Anchor Point CDP in the nonrural Homer Area.

Delta Junction Vicinity: No changes are recommended in the rural status of Delta Junction or the communities in the immediate vicinity for the proposed rule.

Kodiak Area: Consider defining the Kodiak Area to include all people living on the road system connected to the City of Kodiak, with alternative options of not including the Kodiak Station CDP and/or not including the Chiniak CDP and a nearby portion of the Remainder area, and proposing either: 1) no change in the rural status of the Kodiak Area so defined, or 2) changing the status of the Kodiak Area so defined from rural to nonrural.

Ketchikan Area: Consider defining the Ketchikan Area to include all people living on the road system connected to the City of Ketchikan and on Pennock and parts of Gravina Island, either: 1) including Saxman, or 2) not including Saxman, in which case Saxman would retain its current rural status; and consider proposing either: 1) nonrural status for the Ketchikan Area as defined, or 2) rural status for the Ketchikan Area as defined.

LITERATURE CITED

Alaska Airlines. 2006. Internet: http://www.alaskaair.com.

ADCA (Alaska Division of Community Advocacy). 2006. Alaska community database community information summaries. Internet: http://www.commerce.state.ak.us/dca/commdb/CIS.dvm.

ADF&G (Alaska Department of Fish and Game). 2000. Subsistence in Alaska: a year 2000 update. Juneau.

ADF&G (Alaska Department of Fish and Game). 2001. Community profile database. Microcomputer database, updated 2001. Juneau.

ADF&G (Alaska Department of Fish and Game). 2003. Alaska subsistence fisheries, 2003 annual report. Division of Subsistence, Alaska Department of Fish and Game, Juneau.

ADF&G (Alaska Department of Fish and Game). 2004. Subsistence permit database. Juneau.

ADF&G (Alaska Department of Fish and Game). 2005. 2005–2006 Alaska hunting regulations. Juneau.

ADF&G (Alaska Department of Fish and Game). 2006. Staff presentation for discussion of future Joint Board meeting topics. Joint Board meeting, March 21, 2006. JB RC 2. Anchorage.

ADOL (Alaska Department of Labor). 1989. Alaska population overview, 1989. Juneau.

ADOLWD (Alaska Department of Labor and Workforce Development). 2006. Alaska demographic, employment, and cost of living estimates for 2005. Internet: http://almis.labor.state.ak.us

ADN (Anchorage Daily News). 2006. Tough times in Ketchikan. February 26, 2006. Anchorage.

Armstrong, H. 2006*a*. Notes from a phone call to the Prudhoe Bay post office, February 2006. U.S. Fish and Wildlife Service, Office of Subsistence Management. Anchorage.

Armstrong, H. 2006*b*. Field notes from visit to Kodiak Area February 27–March 1, 2006. U.S. Fish and Wildlife Service, Office of Subsistence Management. Anchorage.

Armstrong, H. 2006*c*. Field notes from visit to Ketchikan Area March 22–24, 2006. U.S. Fish and Wildlife Service, Office of Subsistence Management. Anchorage.

Bartolowits, F. 1983. Clam Gulch. Pages 97–100 in W. Pedersen and E. Pedersen, editors. A Larger History of the Kenai Peninsula. Adams Press: Chicago.

Beemer, J. 2006. Delta High School administrator. Personal communication. Delta Junction.

Beland, A. 2006. North Pole school administrator. Personal communication. North Pole.

Binnendijk, H. 2006. Images of Deadhorse, Alaska. Internet: http://henkbinnendijk.tripod.com/deadhorse.

Burcham, L., D. Zimmerman, and P. White. 2006. Delta Junction city employees. Personal communication. Delta Junction.

City of Ketchikan. 2005. City of Ketchikan, Ketchikan Public Utilities 2005 Year-in-Review. Ketchikan.

Coleville, Inc. 2006. The Prudhoe Bay general store and post office. Internet: www.colvilleinc.com/prudhoe_bay_general_store.htm

Conley, S. 2006. Principal. Personal communication. Nikolaevsk School, Nikolaevsk.

Coyne, A. 2002. At Whitestone farms, brothers and sisters live, work, eat, and pray together-and they wouldn't change it for this world. April 25–May1/vol 11, ed. 17 Anchorage Press. Anchorage.

Craver. A. 2006. Field notes from visit to Fairbanks Vicinity March 22–23, 2006. U.S. Fish and Wildlife Service, Office of Subsistence Management. Anchorage.

Davis, B., J. Fall, and G. Jennings. 2003. Wild Resource Harvests and Uses by Residents of Seward and Moose Pass, Alaska, 2000. ADF&G, Div. Subsistence. Tech. Paper No. 271. Juneau.

DeCosimo, J. 2006. Senior plan coordinator, North Pacific Fishery Management Council. Personal communication. Anchorage.

DeVeau, A. 2006. Kana Native Association, Medical services. Personal communication. Kodiak.

Dinnocenzo, J., G. Spalinger, and J. Wadle. In Press. Kodiak Management Area commercial salmon annual management report, 2005. Alaska Department of Fish and Game, Fishery Management Report. Anchorage.

Duskin, C. 2006. City of Adak Administrator. Personal communication. Adak.

ERS (Economic Research Service). 2005. Measuring rurality: Rural-urban commuting area codes. (http://www.ers.usda.gov/Briefing/Rurality/RuralUrbanCommutingAreas).

ERS (Economic Research Service). 2006. Census 2000 Special Tabulation Product 64 (STP64) Census Tract of Work by Census Tract of Residence: 2000. Product sponsored by the Office of Rural Health Policy of the Department of Health and Human Services. Economic Research Service, U.S. Department of Agriculture. Washington, D.C.

Fall, J. 1988. Summary of rural/non-rural findings, Boards of Fish and Game for Kodiak City and road connected area. Alaska Department of Fish and Game, Division of Subsistence. July 6, 1988. Anchorage.

Fall, J. and C. Utermohle, eds. 1995. An investigation of the sociocultural consequences of Outer Continental Shelf development in Alaska, IV. Kodiak Island. OCS Study MMS 95-013, Technical Report No. 160. MMS. Anchorage. Internet: http: www.mms.gov.alaska/ reports/2003andOlderRpts/TechnicalReports/TR160pt4.pdf.

Fall J.A, V. Vanek, L. Brown, G. Jennings, R.J. Wolfe and C. Utermohle. 2000. Wild Resource Harvests and Uses by Residents of Selected Communities of the Kenai Peninsula Borough. ADF&G, Div. of Subsistence. Technical Paper No. 253. Juneau.

Garza, D. 2006. Acting Chair, Southeast Alaska Subsistence Regional Advisory Council. Personal communication. Ketchikan.

Hadland, J., A. Wink, A. Soden, B. Laurent. 2006. Nonresidents working in Alaska 2004. Alaska Department of Labor and Workforce Development. Juneau.

Hawkins, M. 2005. Public testimony at public meeting of the Federal Subsistence Board on rural determinations, December 12, 2005. Anchorage.

Holmes, P. 2006. Member, Kodiak/Aleutians Subsistence Regional Advisory Council. Personal communication. Kodiak.

Johnson. R. 2006. Instructional Technology Teacher, Delta High School. Personal communication. Delta Junction.

KPBSD (Kenai Peninsula Borough School District). 2005. "Attendance Area Boundaries."

Ketchikan Gateway Borough. 2006. Internet: http://www.borough.ketchikan.ak.us/community/community.htm

KIC (Ketchikan Indian Community). 2006*a*. Internet: http://www.kictribe.org/ About%20KIC/about%20KIC.htmhttp://www.kictribe.org/About%20KIC/About%20KIC.htm.

KIC (Ketchikan Indian Community). 2006*b*. Ketchikan household harvest survey, 2005. Ketchikan.

Knapp, G. 2006. Selected economic impacts of crab rationalization on Kodiak: preliminary results. Presentation at the ComFish Alaska 2006 Conference in Kodiak, Alaska, March 17, 2006. Internet: http://www.iser.uaa.alaska.edu/iser/ people/knapp/Knapp_ComFish_Effects_of_Crabratz_on_Kodiak_060317.pdf

Kodiak Chamber of Commerce. 2005. Kodiak community profile and economic indicators. Internet: www.kodiak.org.

Kodiak Alaska Emerald Isle. 2006. Kodiak Island, Alaska – Official Visitors Guide – Driving Tour. Internet: http://www.kodiak.org/driving_tour.html.

Kodiak College. 2006. Internet: http://www.koc.alaska.edu/about_koc/index.html.

Kolund, L. 2006. District Ranger, Misty Fjords National Monument, USDA Forest Service. Personal communication. Ketchikan.

Kruse, J. and V. Hanna. 1998. Assessment of the rural characteristics of Kenai Peninsula areas currently classified as nonrural under Federal subsistence management. Institute of Social and Economic Research, University of Alaska Anchorage.

Lachowsky, R. 2006. U.S. Coast Guard Captain of the Kodiak Station. Personal communication. Kodiak.

Lee, T. 2006. Refuge information technician. Kodiak Refuge, USFWS. Personal communication. Kodiak.

Lewis, E. 1983. Cohoe (Tustemena-Kasilof). Pages 94–96 in W. Pedersen and E. Pedersen, editors. A Larger History of the Kenai Peninsula. Adams Press: Chicago.

MSBSD (Matanuska-Susitna Borough School District). 2006. WasillaHigh.pdf.

McCombs, J. 2006. Librarian. Personal communication. Delta Junction.

McMahon, M. 2006. Kodiak Coast Guard Station Housing Director. Personal communication. Kodiak.

MMS (Minerals Management Service). 1978. Prudhoe Bay Case Study. Minerals Management Service, Anchorage. Internet: www.mms.gov/eppd/socecon/techsum/ak/TR-004.doc

NOAA (National Oceanic and Atmospheric Administration). 2006. NOAA Fisheries, National Marine Fisheries Service. Bering Sea and Aleutian Islands Crab Rationalization Program. Internet: http://www.fakr.noaa.gov/sustainablefisheries/crab/crfaq.htm

Ogle, M. 2006. Community development planner. Personal communication. Kodiak Island Borough. Kodiak.

Organized Village of Saxman. 2006. Internet: http://www.fhwa.dot.gov/hep/tribaltrans/ saxman.htm.

OSM (Office of Subsistence Management). 1995. Summaries of public hearings on the Kenai Peninsula C&T determinations in Hope, Cooper Landing, Soldotna, Homer, Ninilchik, Seldovia, and Port Graham.

OSM (Office of Subsistence Management). 2000. Meeting materials for Federal Subsistence Board public meeting, May 4, 2000, on Proposed Rule, subsistence management regulations for public lands in Alaska, Subpart C – Board determinations. Tab N, pp. 27–28.

OSM (Office of Subsistence Management). 2005*a*. Decennial review of rural determinations: Summary of comments and recommendations received on proposed further analysis and related considerations. November 21, 2005. Anchorage.

OSM (Office of Subsistence Management). 2005*b*. Decennial review of rural determinations: A report to the Federal Subsistence Board on initial comments received and considerations for further analysis. July 15, 2005. Anchorage.

Olsson, K. 2006. Bringing home the bacon: a family that stays together gets paid together. Internet: http://www.uaf.edu/journal/extreme/pdf/families.html.

Painter, A. 1983. Moose Pass. Pages 35–38 in W. Pedersen and E. Pedersen, editors. A Larger History of the Kenai Peninsula. Adams Press: Chicago.

Pedersen, W. and E. Pedersen. 1983. Sterling. Pages 51–63 in W. Pedersen and E. Pedersen, editors. A Larger History of the Kenai Peninsula. Adams Press: Chicago.

Salcha School Official. 2006. Personal communication. Salcha.

Skinner, R. 2006. Natural Resources Director, Sun'aq Tribe of Kodiak. Personal communication. Kodiak.

Simeonoff, E. 2006. Director, Environmental and Natural Resources Department, Leisnoi Village (also known as Woody Island Tribal Council). Personal communication. Kodiak.

Spooner, N. 2006. Kenai Peninsula Borough School District, Transportation Department. Personal Communication. Soldotna.

Swetzof, S. 2006. Adak city administrator. Personal communication. Adak City Office.

Trimmer, J. 2006. School Secretary. Personal communication. Willow Elementary School, Willow.

U.S. Census. 1980. 1980 Census of Population and Housing, Alaska. Final population and housing unit counts. U.S. Department of Congress, Bureau of Census. Washington, D.C.

U.S. Census. 1990. 1990 Census of Population and Housing, Alaska. Final population and housing unit counts. U.S. Department of Congress, Bureau of Census. Washington, D.C.

U.S. Census. 2000. 2000 Census of Population and Housing, Alaska. Final population and housing unit counts. U.S. Department of Congress, Bureau of Census. Washington, D.C.

U.S. Senate. 1979. Alaska National Interest Lands–Report of the Committee on Energy and Natural Resources, United States Senate, Together With Additional Views to Accompany H.R. 39. Senate Report No. 96-413. 96th Congress 1st Session. Washington, D.C.

UAA SE (University of Alaska, Southeast). 2006. Internet: http://www.ketch.alaska.edu/.

UAF (University of Alaska Fairbanks) Cooperative Extension Service. 2006. Third quarter, 2005.

Volpe, B. 2006. US Coast Guard Personnel Office. Personal communication. Kodiak.

Wallace, L. 2005. Public testimony at public meeting of the Federal Subsistence Board on rural determinations, December 12, 2005. Anchorage.

Wikipedia. 2006. Wikipedia, the free encyclopedia. Internet: http://en.wikipedia.org/wiki/ .

Wolfe, R.J. 2000. Subsistence in Alaska: A Year 2000 update. Alaska Department of Fish and Game, Division of Subsistence. March, 2000. Juneau.

Wolfe, R.J., and V. Fischer. 2003*a*. Methods for rural/nonrural determinations for Federal subsistence management in Alaska. Final Report: Analysis and recommended methodology. Submitted to: USFWS, Anchorage, Alaska. January 31, 2003.

Wolfe, R.J., and V. Fischer. 2003*b*. Peer reviews of the report on Methods for rural/nonrural determinations for Federal subsistence management in Alaska. Includes additional information and response to the reviews from the authors. Submitted to: USFWS, Anchorage, Alaska. December 1, 2003.

Appendix A. Comparative community characteristics for decennial review of rural determinations.

Table A1. *Continued on next page.*

	COMMUNITY/ AREA	2005 Population Estimate[1]	ECONOMY: 2000 Census: Population[2]	Wage Employment[2]	% Unemployment[2]	Per Capita Income[2]	Diversity of Services[3]	Large National Retailer[4]	2005 Cost of Food Index[5]	COMMUNITY INFRASTRUCTURE: 2005 Cost of Electricity $/KWH[5]
NONRURAL PLACES	Anchorage Muni	278,241	260,283	Hi Year-round	6.4%	$25,287	High	16	$121.50	$0.12
	Fairbanks NSB	87,650	82,840	Mod Year-round	7.9%	$21,553	High	6	$123.72	$0.14
	Wasilla Area	61,872	49,535	Mod Year-round	9.9%	$20,942	High	5	$120.52	$0.12
	Kenai Area	32,239	30,913	Mod Year-round	11.0%	$21,372	High	2	$128.05	$0.14
	Juneau Area	31,193	30,711	Mod Year-round	5.3%	$26,719	High	2	$123.60	$0.09
	Homer Area	10,166	9,701	Mod Year-round	10.4%	$21,080	High		$150.46	$0.14
	Seward Area	4,970	5,044	Mod Year-round	13.0%	$21,281	High		$134.34	$0.15
	Valdez	3,745	4,036	Mod Year-round	6.1%	$27,341	Mod-High		NA	NA
RURAL PLACES	Sitka Area	8,947	8,835	Mod Year-round	7.4%	$23,622	High		$133.81	$0.10
	Bethel	5,960	5,471	Mod Year-round	8.9%	$20,267	Mod		$202.08	$0.29
	Barrow	4,199	4,581	Mod Year-round	12.7%	$22,902	Mod		NA	NA
	Nome	3,508	3,505	Mod Year-round	10.9%	$23,402	Mod-High		$199.08	$0.23
	Petersburg	3,155	3,224	Mod Year-round	10.3%	$25,827	Moderate		NA	NA
	Kotzebue	3,120	3,082	Mod Year-round	9.8%	$18,289	Mod-High		NA	NA
	Dillingham	2,370	2,466	Mod Year-round	7.1%	$21,537	Moderate		$226.54	$0.25
	Cordova	2,288	2,454	Mod Year-round	6.5%	$25,256	Moderate		$167.93	$0.26
	Wrangell	1,974	2,308	Mod Year-round	8.5%	$21,851	Moderate		NA	NA
	Ninilchik	785	772	Mod Seasonal	18.0%	$18,463	High		NA	NA
	Cooper Landing	344	369	Mod Year-round	0.0%	$24,795	High		NA	NA
	Whittier	188	182	Hi Year-round	15.9%	$25,700	Moderate		NA	NA
	Hope	139	137	Lo Seasonal	13.3%	$9,079	Moderate		NA	NA

[1] Alaska Department of Labor and Workforce Development 2006.
[2] US Census data 2000.
[3] Alaska Division of Community Advocacy 2006.
[4] Number of stores of retailers as identified in report for 2005.
[5] UAF Cooperative Extension Service 2006: 3rd Quarter 2005.
[6] Based on household surveys as reported in ADF&G Community Profile Database (2001) and various ADF&G Technical Reports, except for five places with only estimates for "salmon and large land mammals," which is information from permit data as reported by Wolfe (2000). Limitations of the information are discussed further in the text of this report.
[7] KIC Ketchikan household harvest survey preliminary data.

Appendix A. Comparative community characteristics for decennial review of rural determinations.

Table A1. *Continued*

	COMMUNITY/ AREA	2005 Population Estimate[1]	ECONOMY: 2000 Census: Population[2]	Wage Employment[2]	% Unemployment[2]	Per Capita Income[2]	Diversity of Services[3]	Large National Retailer[4]	2005 Cost of Food Index[5]	COMMUNITY INFRASTRUCTURE: 2005 Cost of Electricity $/KWH[5]
RURAL-NR ANALYSIS	Ketchikan Area	12,720	13,639	Mod Year-round	7.0%	$24,290	High	1	$125.91	$0.10
	Kodiak Area	12,816	12,905	Mod Year-round	4.3%	$22,784	High	1	$147.77	$0.16
	Delta Jnct Area	3,921	3,620	Mod Year-round	12.8%	$17,070	Mod		$144.52	$0.14
	Saxman	405	431	Mod Seasonal	22.2%	$15,642	High		$125.91	$0.10
	Clam Gulch CDP	172	173	Mod Seasonal	26.9%	$17,983	Mod-High		$128.05	$0.14
	Adak	167	316	Mod Year-round	7.4%	$31,747	Low		NA	NA
	Prudhoe Bay	2	5	Hi Year-round	0.0%	$19,880	Low		NA	NA

[1] Alaska Department of Labor and Workforce Development 2006.
[2] US Census data 2000.
[3] Alaska Division of Community Advocacy 2006.
[4] Number of stores of retailers as identified in report for 2005.
[5] UAF Cooperative Extension Service 2006: 3rd Quarter 2005.
[6] Based on household surveys as reported in ADF&G Community Profile Database (2001) and various ADF&G Technical Reports, except for five places with only estimates for "salmon and large land mammals," which is information from permit data as reported by Wolfe (2000). Limitations of the information are discussed further in the text of this report.
[7] KIC Ketchikan household harvest survey preliminary data.

Appendix A. Comparative community characteristics for decennial review of rural determinations.

Table A2. *Continued on next page.*

	COMMUNITY/ AREA	2005 Population Estimate[1]	TRANSPORTATION			EDUCATIONAL INSTITUTIONS[3]	FISH AND WILDLIFE USE[6]			
			Variety of Means[3]	Predominant Means[3]	Road System (miles)[3]		Study Year: Variety used species per household	Percent of households using (or *harvesting)	Pounds per capita all resources	Pounds per capita salmon and lrg land mammals
NONRURAL PLACES	Anchorage Muni	278,241	Air, Barge, Rail, Road	Air/Road	Unlimited	92 Schools, P-12, University	2000: NA	NA	NA	19
	Fairbanks NSB	87,650	Air, Rail, Road	Road	Unlimited	32 Schools, P-12, University	2000: NA	NA	NA	16
	Wasilla Area	61,872	Air, Rail, Road	Road	Unlimited	28 Schools, P-12, Com Col	2000: NA	NA	NA	27
	Kenai Area	32,239	Air, Boat Launch, Road	Road	Unlimited	19 Schools, P-12; Com Col	1993: 7.1	98%	84	55
	Juneau Area	31,193	Air, Barge, Ferry	Air	NA	13 Schools, P-12; University	2000: NA	NA	NA	35
	Homer Area	10,166	Air, Ferry, Road	Road	Unlimited	10 Schools, P-12; Com Col	1982: 8.8	(86%*)	94	43
	Seward Area	4,970	Barge, Ferry, Rail, Road	Ferry/Road	Unlimited	4 Schools, K-12; U of Fairbanks	2000: 7.5	97%	97	62
	Valdez	3,745	Air, Barge, Ferry, Road	Road	Unlimited	4 Schools, P-12; Com Coll	1992: 6.5	97%	103	63
RURAL PLACES	Sitka Area	8,947	Air, Barge, Ferry	Air/Ferry	NA	7 Schools, P-12; University	1996: NA	97%	205	109
	Bethel	5,960	Air, Barge	Air/Barge	58 miles	6 Schools, K-12; Com Col	NA	NA	NA	NA
	Barrow	4,199	Air, Barge	Air	NA	3 Schools, P-12; Tribal Col	1989: NA	(61%*)	289	75
	Nome	3,508	Air, Barge	Air	NA	4 Schools, P-12	NA	NA	NA	NA
	Petersburg	3,155	Air, Barge, Ferry	Ferry/Air	NA	3 Schools, K-12	1987: NA	97%	198	103
	Kotzebue	3,120	Air, Barge	Air	26 miles	3 Schools, K-12	1991: 15.0	99%	593	252
	Dillingham	2,370	Air, Barge	Air	23 miles	3 Schools, P-12; Com Col	1984: 11	98%	242	199
	Cordova	2,288	Air, Barge, Ferry	Air	48 miles	2 Schools, P-12	1997: 14.4	98%	179	115
	Wrangell	1,974	Air, Barge, Ferry	Ferry/Air	NA	3 Schools, K-12	1987: 10+	95%	155	62
	Ninilchik	785	Air, Road	Road	Unlimited	1 School, K-12	1998: 8.6	99%	164	108
	Cooper Landing	344	Air, Road	Road	Unlimited	1 School, K-5	1990: 8.3	100%	92	68
	Whittier	188	Barge, Ferry, Road	Road	Unlimited	1 School, K-12	1990: 8.0	94%	80	45
	Hope	139	Road	Road	Unlimited	1 School, K-12	1990: 9.1	100%	111	81

[1] Alaska Department of Labor and Workforce Development 2006.
[2] US Census data 2000.
[3] Alaska Division of Community Advocacy 2006.
[4] Number of stores of retailers as identified in report for 2005.
[5] UAF Cooperative Extension Service 2006: 3rd Quarter 2005.
[6] Based on household surveys as reported in ADF&G Community Profile Database (2001) and various ADF&G Technical Reports, except for five places with only estimates for "salmon and large land mammals," which is information from permit data as reported by Wolfe (2000). Limitations of the information are discussed further in the text of this report.
[7] KIC Ketchikan household harvest survey preliminary data.

Appendix A. Comparative community characteristics for decennial review of rural determinations.

Table A2. *Continued*

	COMMUNITY/ AREA	2005 Population Estimate[1]	TRANSPORTATION			EDUCATIONAL INSTITUTIONS[3]	FISH AND WILDLIFE USE[6]			
			Variety of Means[3]	Predominant Means[3]	Road System (miles)[3]		Study Year: Variety used species per household	Percent of households using (or *harvesting)	Pounds per capita all resources	Pounds per capita salmon and lrg land mammals
RURAL-NR ANALYSIS	Ketchikan Area	12,720	Air, Barge, Ferry	Air/ferry	NA	9 Schools, P-12; University	2000: NA 2005[7]: 8.8	NA 80%	NA 88	33 73
	Kodiak Area	12,816	Air, Barge, Ferry	Air	140 miles	7 Schools, K-12; Com Col	1993: 11.8	99%	155 Area Weighted	73 Area Weighted
	Delta Jnct Area	3,921	Air, Road	Road	Unlimited	5 Schools, K-12	NA	NA	NA	NA
	Saxman	405	Air, Barge, Ferry	Air	NA	No Schools	1999: 13	97%	217	113
	Clam Gulch CDP	172	Road	Road	Unlimited	No Schools	NA	NA	NA	NA
	Adak	167	Air, Barge	Air/Barge	16 miles	1 School, K-12	NA	NA	NA	NA
	Prudhoe Bay	2	Air	Air	NA	No Schools	NA	NA	NA	NA

[1] Alaska Department of Labor and Workforce Development 2006.
[2] US Census data 2000.
[3] Alaska Division of Community Advocacy 2006.
[4] Number of stores of retailers as identified in report for 2005.
[5] UAF Cooperative Extension Service 2006: 3rd Quarter 2005.
[6] Based on household surveys as reported in ADF&G Community Profile Database (2001) and various ADF&G Technical Reports, except for five places with only estimates for "salmon and large land mammals," which is information from permit data as reported by Wolfe (2000). Limitations of the information are discussed further in the text of this report.
[7] KIC Ketchikan household harvest survey preliminary data.

Appendix B. Community characteristics produced by staff in 1990 for Federal rural determination considerations. *Continued on next page.*

Proposed Status Rural = R Nonrural = N	COMMUNITY/AREA		ECONOMY					FISH AND GAME USE[7]			COMMUNITY INFRA-STRUCTURE	TRANSPORTATION			EDUCATIONAL INSTITUTIONS
	Community/ Area	1988 Population Estimate[1]	Wage Employment[2]	1988 % Unemployment[3]	1985 Taxable Income[4]	Diversity of Services[5]	1988 Cost of Food Index[6]	Variety Used Species/HH	Degree of Participants % of HH	Levels of Harvest Average #/capita	1988 Average Cost of Electricity $/KWH[8]	Variety of Means	Predominant Means	Road System (miles)	
	A. > 7,000														
N	Anchorage Area	222,950	Hi Yr Round	7.6	$25,855	High	102	--	--	10	0.08	Rail, Air, Barge, Road	Road/Air	Unlimited	K–12, University (2), Comm. College
N	Fairbanks Area	72,361	Hi Yr Round	12.2	$25,464	High	114	15	--	--	0.10	Rail, Air, Road	Road/Air	Unlimited	K–12, University, Comm. College
N	Wasilla Area	30,000+	Hi Yr Round	16.4*	$24,296	High	117	--	--	17	0.10	Rail, Road	Road	Unlimited	K–12, Mat-Su Coll., Private (1) Voc-ed
N	Juneau Area	24,621	Hi Yr Round	5.8	$25,871	High	120	--	--	--	0.12	Air, Ferry, Barge	Air/Ferry	50	K–12, University of AK
N	Kenai Area	14,789+	Mod-Hi Seasonal	14.5*	$27,166	High	113	5.1	81%	37	0.09	Daily Air, Barge, Road	Road	Unlimited	K–12, Comm. College
N	Ketchikan Area	12,296	Mod-Hi Seasonal	8.7	$23,008	High	120	--	--	--	0.08	Air, Ferry, Barge	Air/Ferry	25	K–12, University of AK SE
N	Kodiak Area	8,495	Mod-Hi Seasonal	6.1	$20,837	High	130	11.9	100%	143	0.16	Daily Air, Barge, Ferry	Air	154	K–12
N	Sitka Area	8,257	Mod-Hi Seasonal	6.9	$22,589	High	111	31	60%	150	0.07	Air, Ferry, Barge	Air/Ferry	25	K–12, University
	B. 2,500–7,000														
N	Homer Area	5,577	Mod - Seasonal	--	$20,052	Hi-Mod	124	8.8	86%	90	0.09	Road, Daily Air, Ferry	Road	Unlimited	K–12 plus Voc. Ed.
R	Bethel	4,390	Mod - Seasonal	8.7	$23,041	Mod	182	29	--	--	0.19	Air, Barge	Air	16	K–12, Comm. College
N	Adak	4,143	Hi Yr Round	7	$35,000	Hi-Mod	<100	2.5	40%	16	0.01	Air, Barge	Air	128	K–12, Comm. College Ext. Service
R	Nome	3,403	Mod - Seasonal	11.5	$23,412	Mod	174	25	95%	216	0.18	Air, Barge	Air	16	K–12, Comm. College

[1]Based on an aggregation of AK Department of Labor estimates.
[2]Based on judgment on staff knowledgeable sources and available data and AK department of Labor estimates.
[3]Based on AK Department of Labor estimates. *Indicates communities which were average with other communities, thus some error is interjected.
[4]AK Department of Revenue
[5]Based on subjective judgment of staff and data from the Institute of Social and Economic Research and the AK Department of Commerce and Economic Development.
[6]AK Department of Commerce and Economic Development.
[7]Information from the Subsistence Division, AK Department of Fish and Game. Adak information was estimated by U.S. Fish and Wildlife staff.
[8]Alaska Energy Authority, 1989.

Appendix B. *Continued.*

Proposed Status Rural = R Nonrural = N	COMMUNITY/AREA		ECONOMY					FISH AND GAME USE[7]			COMMUNITY INFRA-STRUCTURE	TRANSPORTATION			EDUCATIONAL INSTITUTIONS
	Community/ Area	1988 Population Estimate[1]	Wage Employment[2]	1988 % Unemployment[3]	1985 Taxable Income[4]	Diversity of Services[5]	1988 Cost of Food Index[6]	Variety Used Species/HH	Degree of Participants % of HH	Levels of Harvest Average #/capita	1988 Average Cost of Electricity $/KWH[8]	Variety of Means	Predominant Means	Road System (miles)	
N	Valdez	3,313	Hi Yr Round	10.7*	$28,468	Hi-Mod	117	45	--	--	0.17	Road, Air, Barge, Ferry	Road	Unlimited	K–12, Comm. College Ext. Serv Dev Center
R	Petersburg Area	3,230	Mod - Seasonal	9.4*	$23,779	Mod-Hi	122	41	97%	203	0.10	Ferry, Jet	Air	20	K–12
R	Barrow	3,146	Mod - Seasonal	5.3*	$31,322	Mod	206	21	70%	202	0.08	Air, Barge	Air	6	K–12
R	Kotzebue	2,660	Mod - Seasonal	--	$22,473	Mod	206	42	--	--	0.21	Air, Barge	Air	45	K–12, Comm. College Tech Center
N	Seward	2,607	Mod - Seasonal	--	$21,579	Hi-Mod	136	--	--	--	0.10	Road, Ferry, Air, Rail, Barge	Road	Unlimited	K–12 plus Voc. Ed.
	C. < 2,500														
R	Wrangell	2,416	Mod - Seasonal	9.4*	$20,227	Mod	122	33	95%	158	0.11	Air, Barge, Ferry	Air/Ferry	5	K–12, SE Comm. Coll Extension
R	Dillingham	2,232	Mod - Seasonal	6.5	$21,829	Mod	219	11	99%	242	0.18	Daily Air, Barge	Air	30	K–12, 1 Pvt. School
R	Cordova	2,048	Mod - Seasonal	10.7	$22,340	Mod	164	10.8	99%	152	0.21	Air, Barge, Ferry	Air/Ferry	20	K–12
R	Ninilchik	491	Low - Seasonal	--	$18,753	Low	--	8	--	76	--	Road	Road	Unlimited	K–12
R	Cooper Landing	279	Low - Seasonal	--	$25,819	Low	--	--	--	--	--	Road	Road	Unlimited	--
R	Whittier	206	Low - Seasonal	--	$24,026	Low	--	--	--	--	--	Rail, Ferry, Barge	Rd/Ferry	10	K–12
R	Hope	163	Low - Seasonal	--	$19,860	Low	--	--	--	--	--	Road	Road	Unlimited	--

[1]Based on an aggregation of AK Department of Labor estimates.
[2]Based on judgment on staff knowledgeable sources and available data and AK department of Labor estimates.
[3]Based on AK Department of Labor estimates. *Indicates communities which were average with other communities, thus some error is interjected.
[4]AK Department of Revenue
[5]Based on subjective judgment of staff and data from the Institute of Social and Economic Research and the AK Department of Commerce and Economic Development.
[6]AK Department of Commerce and Economic Development.
[7]Information from the Subsistence Division, AK Department of Fish and Game. Adak information was estimated by U.S. Fish and Wildlife staff.
[8]Alaska Energy Authority, 1989.

Appendix C

Use of Population Density as a Community Characteristic

Government boundaries, such as cities and boroughs, can vary greatly in size independent of population sizes, making densities based upon such boundaries not comparable. Recognizing the concept of daily use areas inherently associated with communities that should be taken into account when considering densities, Wolfe and Fischer (2003*a*) developed a standardized geographic approach. Their approach makes use of the census tract or census designated place (CDP) for a given place of interest, whichever provides the finest level of resolution. However, the area of the census unit is not used to calculate density. Rather, a standardized area encompassing a 30-mile radius from the geographic center of the census unit is considered, regardless of the size or shape of the census unit. If the location is an isolated one, the resulting population density is simply the population reported for the census unit of interest divided by the area of a circle with a 30-mile radius (2,826 sq. mi.). An isolated location with a population of 2,826 people would thereby have a calculated density of 1.00 (persons per square mile over a 30-mile radius standard area).

For many circumstances, however, there are other nearby populations that fall within an area of 30-mile radius. Wolfe and Fischer (2003*a*) addressed this by factoring in the population of any neighboring census unit whose center falls within the standard area of the place of interest. The population of that neighboring place is included in a weighted manner, proportional to the distance in miles between the centers. For example, only 1/5th of the population of a neighboring place whose center was 5 miles away from the center of the place of interest would be included in the density calculation, and only 1/10th of the population of a place whose center was 10 miles away. This weighting factor attempts to take into account the diminishing influence of a neighboring place with distance.

Solicited peer review of Wolfe and Fischer (2003*a*) raised questions about the proportional weighting method employed with the population density measure. The authors addressed these concerns (Wolfe and Fischer 2003*b*) by reasserting the rationale for applying a weighting factor, and defending the particular factor they had applied as reasonable, although acknowledging that other weighting factors could be used. Wolfe and Fischer (2003*b*: page 48) state that weighting populations by distance "factors in the declining 'presence' of neighbors at greater distances—a community 30 miles away exerts less of a presence than the same community 2 miles away." As to the merits of the specific weighting factor used, Wolfe and Fischer (2003*b*: page 50) note that "Given these actual patterns of interaction between communities, the simple division of population by straight-line distance seems to be a reasoned weighting approach."

In practical terms, the concern with the weighting factor used by Wolfe and Fischer was that the influence of neighboring communities may drop off too quickly. For a community that has neighboring populations within 30 miles, the weighting factor used by Wolfe and Fischer (2003*a*) would produce a population density measure lower than would be computed with a weighting factor that accounted for neighboring communities more aggressively. This does not apply for an isolated community, since there is no neighboring population to take into account with a weighting factor. It should be noted that Wolfe and Fischer (2003*a*) were advancing their population density measure as one of two key factors in experimental approaches to rural determinations. Concerns with the weighting factor are mitigated in the present application in that the density is being incorporated only as one of several community characteristics in a comparative approach, without imposition of rigid thresholds.

Because population densities calculated by Wolfe and Fischer (2003*a*) made use of census units and not the areas as defined in the Federal Subsistence Management Program, representative estimates were used here. For example, the Wasilla Area grouping includes many census units. In such cases, the population

density for only one of the census units was used here. To be consistent, a unit with a density on the high end for that grouping was selected. Specifically, the Lakes CDP, with a reported population density of 4.54, was used for the Wasilla Area, whereas among the several other census units in the grouping, the Wasilla CDP had a density of 3.86, and the Palmer CDP had a density of 3.58.

The following table lists estimates of population density in 2000 (persons per square mile weighted over a standardized 30-mile radius area) from Wolfe and Fischer (2003*a*) for locations representative of nonrural places, rural places, and places under further rural/nonrural analysis.

	Place Name	2000 Population Density Estimate
Nonrural	Anchorage-Lake Otis	30.71
	Fairbanks-Central Fbks	9.00
	Wasilla-Lakes CDP	4.54
	Kenai CDP	3.40
	Juneau-Mendenhall East	4.78
	Homer CDP	1.78
	Seward CDP	1.11
	Valdez	1.43
Rural	Sitka	1.69
	Bethel	
	Barrow	1.62
	Nome	
	Petersburg	1.14
	Kotzebue	1.09
	Dillingham	0.89
	Cordova	0.87
	Wrangell	0.82
	Ninilchik	0.51
	Cooper Landing	0.16
	Whittier	0.06
	Hope	0.06
Rural-NR Analysis	Ketchikan City	2.43
	Saxman	1.62
	Kodiak City	2.39
	Delta Junction	
	Adak	
	Prudhoe Bay	