

**IMPACT OF SEASONAL POPULATION VARIATIONS  
ON  
FRONTIER COMMUNITIES:  
MAINTENANCE OF THE HEALTHCARE INFRASTRUCTURE**

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## DEFINITION OF FRONTIER

*Note:* All references to “frontier” use the Consensus Definition of the Frontier Education Center unless otherwise indicated ([www.frontierus.org/rep\\_geog.html#definition](http://www.frontierus.org/rep_geog.html#definition)). Counties and/or frontier areas so defined have been developed with the involvement of all of the relevant State Offices of Rural Health (100 percent response rate). This definition has not been adopted by any Federal programs but has been adopted as policy by the Western Governors’ Association ([http://www.frontierus.org/pol\\_wga.html](http://www.frontierus.org/pol_wga.html)) and the National Rural Health Association. The Consensus Definition weights three elements – population density, distance in miles and travel time in minutes - which together, generally describe the geographic isolation of frontier communities from market and/or service centers. The Center understands that various programs will establish their own programmatic definitions and eligibility criteria.

# IMPACT OF SEASONAL POPULATION VARIATIONS ON FRONTIER COMMUNITIES:

## MAINTENANCE OF THE HEALTHCARE INFRASTRUCTURE

### EXECUTIVE SUMMARY

This report presents the findings from three case studies of frontier communities with seasonal population variations. The study builds on the results of a 2003 survey of State Offices of Rural Health and seeks to document the experience of a small number of communities with seasonal populations in meeting the health care needs of both the permanent local population as well as the seasonal residents and visitors. Three communities located in frontier counties were selected for case studies: Skagway, Alaska; Quartzsite, Arizona; and Lake City/Hinsdale County, Colorado.

Case studies were developed using a variety of data sources, with key informant interviews providing the primary data. The case studies sought to answer two broad questions: How is the health care infrastructure managed to accommodate variations in need resulting from seasonal population fluctuations? And, how does managing the infrastructure for seasonal populations affect the care of the permanent local population?

As found in the earlier study, reliable data on seasonal populations were not available; data sources provided fragmented, incomplete, and often contested estimates of populations throughout the year. Definitional problems contributed to difficulties in estimating seasonal populations. “Seasonal populations” could include legal residents as well as visitors, temporary workers, employers, and second homeowners; housing in non-permanent structures (e.g. RV trailers) complicates counting methodologies.

In all three communities, health services are very limited. Only one community had a resident year-round physician, and only for the past 6 months. None have a pharmacy. Year-round and seasonal residents alike are accustomed to seeking health (and other) services elsewhere, paying high costs for transportation and lodging in addition to medical care, often without insurance. Two of the three communities have developed financial mechanisms to support the public provision of health services; the third is in the discovery process, examining options for doing the same.

#### Commonalities among the case study communities

- **Failure of markets to provide public services.** In frontier communities, the small populations, large land areas, and distance from larger markets result in a scale of economy that cannot support the private provision of services. Public response is necessary to fill gaps in service that may be covered by private providers in urban areas.
- **Volunteerism.** Volunteerism is a common feature of these communities, among both year-round and seasonal residents. Volunteerism is both a desired cultural feature and a core piece of community identity, but also a response to market failure. Year-round

residents often wear many hats; community roles may change throughout the year. Increases in cost of living due to lack of affordable housing, and increasing requirements for certifying emergency responders may place an intolerable strain on the volunteers and threaten this important role in small communities.

- **Dominance of public lands.** All three communities are surrounded by a high proportion of public lands, with a number of consequences. The public lands draw the seasonal populations; differences in agency and management of the lands have an impact on the relative contribution of seasonal populations to the local government. Impacts range from a housing crisis (Skagway) to the development of an alternative economy (Quartzsite).
- **Desire to develop a year-round economy.** A common development objective was to broaden the year-round economic activity, and lessen the seasonal swings. Increasing the range of locally available health services is considered an important factor in attaining this goal.

### **Differences between communities**

- **Community differences.** Communities vary in geography, climate and amenities, socioeconomic and demographic characteristics, and health profiles. Importantly, they also vary in the context of local governance and autonomy within governmental hierarchies. Not all communities have the same set of policy options available when attempting to locally improve health services. ERS County Typologies were useful in identifying some differences; local government structures and relations with other governmental and non-governmental entities at multiple scales are important to understanding the local context.
- **Differences between seasonal populations.** Seasonal populations vary by time of year, average age, activities, participation in the local community, and healthcare needs. They also vary by economic status and ability to contribute to the local economy. Not all seasonal visitors are wealthy or retired, not all have health insurance. One community could be characterized as catering to high-end luxury tourism, another by lower-end bargain hunting retirees. This influences the potential to generate revenue for public services.

### **Impact of seasonal populations on health service infrastructure**

In all three cases, the seasonal population was considered to be similar to the permanent population in ethnic, sociodemographic, and health characteristics. The increase in population during high season represented increased demands on the health care system, but was characterized simply as “more of the same.”

**Emergency services.** The greatest impact of seasonal populations is on emergency services and related infrastructure. The high-risk activities of the seasonal population test the local capacity for emergency response; this benefits the locals who likewise participate in high-risk activities. All three communities had well-established emergency response systems and medical evaluation plans. However, capacity could be quickly overwhelmed, and unsafe travel conditions resulting from bad weather could jeopardize these plans.

**Need to reduce unnecessary transport.** All three communities wish to increase the capacity to treat accidents and emergencies locally. The ability to treat less serious injuries locally would reduce the need for costly transport, both in terms of money and in volunteer time. Improved diagnostic capabilities would also reduce unnecessary transport. Transportation times could be lengthy and involve multiple transfers. And, these services could be quickly overwhelmed in the case of multiple casualties. They were further subject to frequent limitations imposed by weather conditions that can make both road and air travel unsafe. Further, the high costs of air evacuation (up to \$20,000 per flight) accrue to individuals, health systems, and insurance companies. For the uninsured individual, the cost of a single accident was catastrophic.

**Managing seasonal variations in supply and demand.** One community-based strategy to assist residents in obtaining healthcare was to offer alternative work schedules (e.g. a four-day work week) to accommodate the need to travel long distances. Strategies employed by health services providers in these communities to manage seasonal fluctuations included:

- Scheduling staff vacations in the off-season
- Granting extended leave to some staff in the off-season, effectively creating a seasonal schedule while maintaining permanent employment
- Contracting with and providing office space for visiting providers
- Encouraging residents to schedule routine care during the off-season
- Hiring seasonal employees
- Increasing the use of volunteers in peak season
- Contracting with locum tenens (seasonal/temporary substitute) providers

Although the locum tenens system was designed in part with rural communities and temporary needs in mind, it was the least-preferred solution to a perennial problem. Locum tenens providers were viewed as very expensive, providing housing as part of the contract was difficult, and quality of care was uncertain.

The potential for reciprocity between “summer” and “winter” communities was unexplored. The possibility may exist for “winter” communities to partner with “summer” communities to share healthcare resources. Although some private providers already have seasonal practices, small frontier communities often lack the economic base to support private providers and must rely on public initiatives.

Because of their proximity to international borders, residents of two communities – Skagway and Quartzsite – often relied on an “international safety net” for access to affordable services. The loss of access to Canadian physicians for Skagway residents represented a dramatic policy barrier to geographically accessible health services.

Because this study employed a case study approach, these findings cannot be generalized. The three communities showed a wide range of demographic, economic, and sociocultural conditions. Differences in state and local government further conditioned the range of policy responses available at the local level.

# **IMPACT OF SEASONAL POPULATION VARIATIONS ON FRONTIER COMMUNITIES:**

## **MAINTENANCE OF THE HEALTHCARE INFRASTRUCTURE**

### **I. INTRODUCTION**

This report presents the findings from three case studies of frontier communities with seasonal population variations. As a follow-up to an earlier survey, the study builds on the results from a survey of State Offices of Rural Health and seeks to explore how the healthcare infrastructure – specifically within frontier communities – interacts with the ebbs and flows of seasonal populations.

#### **A. Key Findings from the 2003 Survey on Seasonal Populations**

In 2003, the Frontier Education Center surveyed the State Offices of Rural Health (SORH) in States with counties designated as frontier (Frontier Education Center 2003)<sup>1</sup>. The goals of this study were to compile available data on seasonal population fluctuations, document any known impacts of these fluctuations on health services, and learn how affected communities cope with these fluctuations. However, the primary lesson learned from this project is that there is no uniform system for collecting seasonality data. Neither communities, States, nor Federal agencies have a satisfactory or uniform method of collecting data on seasonal populations; moreover, the State Offices of Rural Health were not in the position to collect such data.

This might not be surprising given the range of different types of seasonal populations and the communities into which they migrate. A typology of seasonal populations that particularly affect frontier communities emerged from responses to the survey; these include:

- a. Seasonal workers (e.g. fisheries, farm, tourist industry)
- b. Outdoor / high risk recreation
- c. National parks & monuments tourism
- d. Snowbird communities
- e. Seasonal / second home communities
- f. Special events (e.g. Sturgis, South Dakota, Motorcycle Rally)
- g. Other tourists and short-term visitors

Given the lack of available information to answer the initial question, a second part was undertaken to develop a resource guide for States and communities who would like to find additional information about seasonal population changes, how seasonal impacts are identified and what Federal and State agencies collect and analyze this information.

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<sup>1</sup> The report of the 2003 survey, “Seasonal Population Fluctuations In Rural And Frontier Areas: The View From State Offices Of Rural Health” is freely available on request or from the Frontier Education Center website, at <http://www.frontierus.org/>

A variety of different agencies, at different scales, collect data related to seasonal populations, including State tourism offices, transportation departments, university business schools, State and national parks, and other non-health entities. For relevant health-related data on seasonal populations, several SORHs indicated that hospitals, EMS providers, and public health offices at the local level might have relevant data.

SORH respondents who were aware of communities with important seasonal population variations named a number of communities as examples. These examples formed the pool from which the case studies were selected for further research.

## **B. Objectives and Methods**

Given the limited information available for the first study, this follow-up study seeks to document the experience of a small number of communities with seasonal populations in meeting the healthcare needs of both the permanent local population as well as the seasonal residents and visitors. Three communities were selected for case studies: Skagway, Alaska; Quartzsite, Arizona; and Lake City/Hinsdale County, Colorado.

The case studies sought to answer two broad questions:

**Question 1:** How is the healthcare infrastructure managed to accommodate variations in need resulting from seasonal population fluctuations?

**Question 2:** How does managing the infrastructure for seasonal populations affect the care of the permanent local population?

Key informant interviews were conducted via telephone in June and July 2005. In some cases, follow up questions and responses were elicited via email. Initial contact was made with local Chambers of Commerce, who then provided names and contact information for further interviews. In one case, the Chamber forwarded an email request to all the identified informants. Some informants named additional persons as potential respondents. In some cases, personnel at the SORH also served as key informants, assisted with referrals, and provided background materials. See Appendix A for a list of contacts.

A more detailed question guide was developed and refined as research progressed; the question guide appears in Appendix B. This guide served as a starting point to focus the inquiry, and where possible, informants were provided with the guide in advance of the interviews. Because informants drew on local context and individual expertise in their responses, however, the data elicited from each community varies.

A number of supplementary materials were used to develop the case studies. In the case of Skagway, it was possible to supplement the interviews with material from the [The Skagway News](#), as its archive was freely accessible online. In Quartzsite, an ongoing community-initiated collaborative research project on health services and seasonality had been initiated during the previous year. The project meant that a number of key informants had been focused on the same

issues; this both helped and hindered the present inquiry. Key findings and research reports were shared and incorporated into this project. And in Colorado, Lake City and Hinsdale County were in the process of going through a joint multistage participatory project to develop a comprehensive plan; the preliminary plan and supporting documents (including results from stakeholder interviews) were available online, providing an invaluable resource.

It is worth noting that for two of the case study communities, summer is the high season. As the interviews coincided with their busy season, it was often difficult to reach people in those communities and may have influenced both responders and non-responders.

## **II. CASE STUDIES**

Three communities with large seasonal population fluctuations were selected from different geographical contexts with the intent of identifying experiences with different types of seasonal populations. Skagway experiences an influx of seasonal workers who largely cater to the cruise ship passengers who arrive every day in Skagway during the summer season. Quartzsite is a winter haven to snowbirds and recreational vehicle (RV) enthusiasts. Hinsdale County draws outdoor sports enthusiasts in high-altitude (and high-risk) adventures mainly during the summer.

Nonetheless, there were a number of similarities as well as differences among these communities. All three communities are located within frontier counties or county-equivalents, based on the 2000 Frontier Education Center consensus definition (Frontier Education Center 2000): Skagway, an independent city, is classified by the Census Bureau as part of the Skagway-Hoonah-Angoon Census area; Quartzsite is in La Paz County; Lake City is the only town – and therefore the county seat - in Hinsdale County. All three are also classified by the Federal Office of Management and Budget (OMB) as non-metro, non-core counties. And all three owe the presence of seasonal residents and visitors, to a large extent, to landscapes dominated by public lands.

The USDA Economic Research Service (ERS) has a number of tools for classifying rurality at the county level. Table 1 shows select demographic and housing characteristics from the 2000 Census, the 2003 Urban Influence Codes (UIC), 2004 County Typology codes, and the 1989 Federal Lands Policy type.

Of the three frontier counties, La Paz County (Quartzsite) has the largest population, and Hinsdale County the smallest. For the UICs, the smaller codes represent greater urban influence. La Paz is adjacent to a metropolitan county (UIC 4); it is adjacent to Yuma County to the south (Yuma metro area), and Maricopa County to the east (Phoenix-Mesa-Scottsdale metro area). The Skagway-Hoonah-Angoon Census area is classified UIC 10, adjacent to a micropolitan county (Juneau City and Borough), but does not have any towns with a minimum population of 2,500-9,999. Hinsdale County has the least urban influence (UIC 12), is not adjacent to either a metro or micropolitan county, and also lacks a town with a minimum population of 2,500.

**Table 1: Comparison of Case Study Counties**

	<b>Skagway-Hoonah-Angoon Census Area (Skagway, AK)</b>	<b>La Paz County (Quartzsite, AZ)</b>	<b>Hinsdale County (Lake City, CO)</b>
<b>Select Demographic and Housing Characteristics, 2000 Census</b>			
County Land Area (sq miles)	7,770	4,500	1,078
County Population Density	0.4	4.4	0.7
County Population, 2000	3,436	19,715	790
Population, Percent Change, 1990-2000	N/A	+ 42%	+ 69%
Housing Units, Percent Change 1990-2000	.3%	48.6%	4.0%
Median age (years)	37.8	46.8	43.9
Percent 65 years and over	8.5	25.8	11.6
Median household income	40,879	25,839	37,279
Per capita income	19,974	14,916	22,360
Percent below poverty level (individuals)	12.8	19.6	7.2
Percent of housing units in seasonal recreational or occasional use	22.3	34.6	61.3
<b>2003 Urban Influence Codes</b>	10	4	12
<b>ERS 2004 County Typology</b>			
<b>Economic Dependence</b>	Federal/State Government	Non-specialized	Services-dependent
<b>Policy Type</b>			
Housing stress	X		
Low-education		X	
Low-employment	X	X	
Persistent poverty			
Population loss			
Non-metro recreation	X	X	X
Retirement destination		X	
Federal Lands (1989 County Typology)	X	X	X
<b>Percent Federal Lands</b>	N/A	77.5%	97%
<b>County PILT payments, 2005</b>	297,987	1,059,374	72,468

See Appendix C for descriptions of the 2003 Urban Influence Codes and the 2004 County Typologies. Data Sources: 2003 Urban Influence Codes, (Economic Research Service 2004a); 2004 County Typologies, (Economic Research Service 2004b); 1989 County Typologies (Economic Research Service 1994). PILT=Payments-in-lieu-of-taxes.

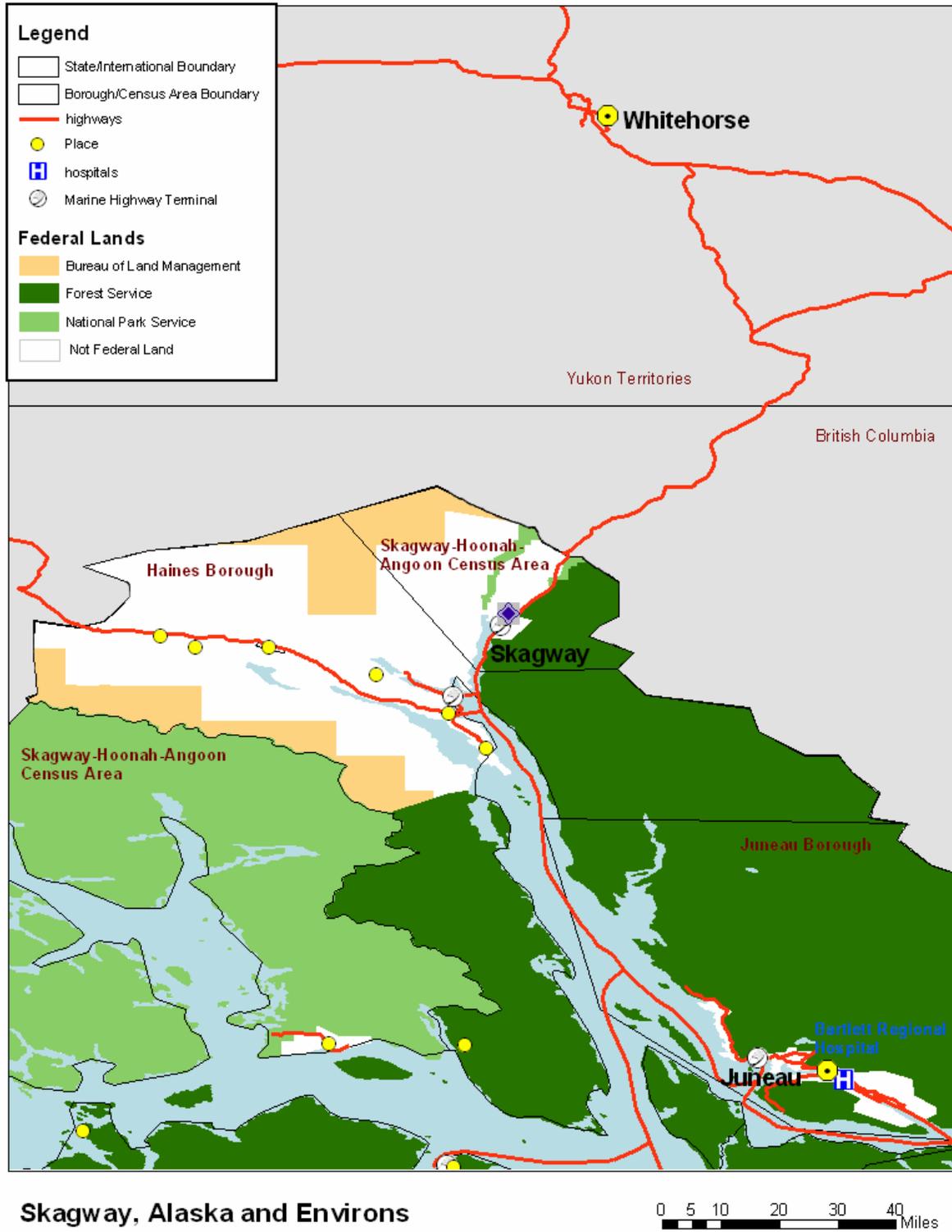
Skagway-Hoonah-Angoon had both the youngest median age and the lowest percent of residents 65 years and older. La Paz was the “oldest” for both indicators. La Paz has the highest proportion of residents 65 and older in the State of Arizona. Skagway-Hoonah-Angoon also had the highest median household income, but Hinsdale had the highest per capita income; La Paz was the lowest for both. La Paz also had the highest percent of individuals living in poverty (20 percent). Hinsdale County had an extremely high proportion of housing units classified as seasonal, recreational, or occasional use (61 percent), reflecting the second home ownership of Hinsdale’s seasonal population. As mobile homes and trailers are not included in this statistic, Skagway and La Paz appear to have a much smaller seasonal housing stock (22 percent and 35 percent, respectively).

In the 2004 County Typology Economic Type classification, La Paz is classified as non-specialized, or not dependent on any of the classified industries. In contrast, Skagway-Hoonah-Angoon is classified as Federal/State government-dependent, meaning that “15 percent or more of average annual labor and proprietors' earnings derived from Federal and State government during 1998-2000” (Economic Research Service 2004b), in spite of the importance of tourism and related industries. Hinsdale County is classified as services-dependent, where a minimum of 45 percent of labor and proprietors’ earnings come from service categories such as retail trade; finance, insurance, and real estate; and miscellaneous services.

The ERS Policy Types indicate two important similarities. First, all three counties were classified as “non-metro recreation destinations.” Second, all three were classified as “Federal lands” policy types in the 1989 County Typology (Economic Research Service 1994) (this category was not updated in the 2004 County Typology). The recreation classification reflects, to a great extent, the high proportion of Federal lands available for recreation opportunities. Of the three, Hinsdale County had the highest proportion of Federal lands (97 percent); the majority of these lands are National Forest lands. In La Paz County, the majority of Federal lands are Bureau of Land Management (BLM) lands. On average, the population of non-metro recreation counties grew by approximately 20 percent in the 1990s, or three times the average population growth of other non-metro counties (Johnson and Beale 2003; Reeder and Brown 2005). Both La Paz and Hinsdale counties demonstrate this rapid growth (in part a reflection of a small initial population), with populations increasing by 42 percent and 69 percent respectively (similar data are not available for the Skagway-Hoonah-Angoon census area).

The other policy type classifications identify differences between the three counties. La Paz County was further classified as low education, low employment, and retirement destination policy types. Skagway-Hoonah-Angoon was also classified as low employment; it was the only one classified as housing stressed. Hinsdale had no further policy classification.

# CASE 1: SKAGWAY, ALASKA



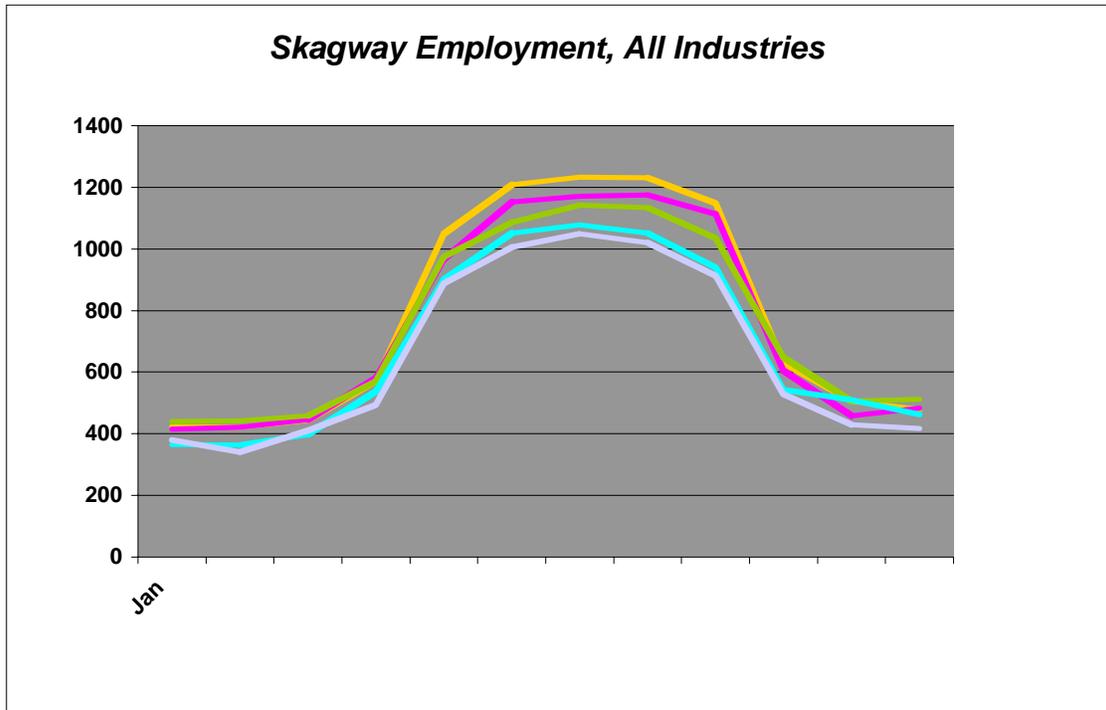
Skagway is located in Southeast Alaska, the northernmost stop in the Inside Passage. The city is connected to Juneau via the Alaska Marine Highway with regular and high-speed ferries, as well as air service to Juneau. It is also one of the few communities in the region with a road connection to Canada and interior Alaska. The Klondike Highway, with year-round access established in 1986, runs from Skagway, through British Columbia and into the Yukon Territories, eventually joining the Alaska Highway. The nearest city reachable by highway (110 miles) is Whitehorse, Yukon Territories; road distance to Anchorage or Fairbanks is approximately 800 miles. Popular visitor attractions include the historic sites of the gold rush, including the Klondike Gold Rush National Historical Park.

**“Industrial tourism.”** Tourism is the “lifeblood” of Skagway (Boucher 1999). Skagway has a year-round population of 862 (2000 Census) that triples in the summer to approximately 2,500 with seasonal business owners and their employees. In addition, the city expects to receive over a million visitors this year between May and September, mainly from the cruise ship industry (800,000 passengers and 200,000 crew), averaging 6,000-8,000 disembarkments per day. Another 200,000 independent visitors are expected this summer. In recent years, cruise ships arrived six days a week during the season, allowing one day off per week. However, this year, from the first day of the season the ships have arrived “every day for five months, 133 days,” allowing no breaks from work, congestion, waiting lines, or tourists.

*It is difficult to determine the exact number of people working in Skagway, either in the summer or in the winter. Estimates include 556 year round residents plus anything up to an additional 1500 -2000 in the busy summer season. (Skagway Development Corporation 2004)*

Seasonal workers tend to be young – many are students – and many are “repeaters,” returning year after year. Because tourism is seasonal, a few months of each year account for a major portion of the total economic activity. For example, in 1998, total employment varied from 349 in January to 1,106 in July, with the number of employers with 10 or more employees ranging from 11 in January to 26 in July (Boucher 1999); in 2004, the number of jobs ranged from 424 in January to 1,233 in July (see Figure 1). Many businesses close for the winter, and in most cases, when the seasonal businesses close, the owners as well as employees leave town. Some “seasonal residents” are permanent residents who also go south for the winter, including a number of retired “snowbirds.”

**Land issues.** In terms of area, Skagway is the largest city in Alaska, with 455 square miles of land (City of Skagway no date). However, approximately 7,000 acres of municipal lands are unavailable for development until the city receives patent for this acreage (Skagway Development Corporation 2004). The Alaska Statehood Act of 1958 included a transfer of 800,000 acres of Federal lands to the new State specifically for the purpose of developing and expanding communities and providing a means of financing local government (1958). Patent is the final hurdle in a complicated and lengthy legal process of redistribution from the Federal government, to Native Alaskans and the State of Alaska, and finally to local governments. The City of Skagway expects to have 345 acres conveyed this year and another 900 soon after.



**Figure 1. Seasonal variation in Skagway employment.** Employment statistics for companies reporting to the Alaska Department of Labor. Numbers do not include non-reporting companies, self-employed, government employed, or workers who work in Skagway but are reported in statistics for other communities (e.g. company HQ or regional offices). Graph courtesy of the Skagway Development Corporation; employment statistics from the Alaska Department of Labor.

**Housing crisis.** The inability to develop these lands is a principle cause of a housing problem that has reached crisis proportions. While the land issue is expect to be resolved in the near future, housing continues to be the biggest problem facing seasonal business owners and employees, and has contributed to skyrocketing land and housing values; this in turn has created a scarcity of affordable housing for permanent and new residents. Many seasonal employers provide housing as part of the employment contract; those that don't may have difficulty in recruiting employees (Collins 2001a). Homes, apartment buildings, and even hotels have been purchased for seasonal use, and are removed from the year-round market. RV parks and campgrounds are often filled beyond capacity with seasonal workers, who may pay as much for a campsite as they would for an apartment if one were available, while visitors who arrive intending to camp may have difficulty finding space. Overflowing campgrounds have resulted in RVs parking in undesignated places, forcing the city to consider temporary re-zoning measures to accommodate the overflow (Grove 2005).

*“What we’re trying to do is still allow RVs to be used as housing . . . We also don’t want this town to become an RV park” (Grove 2005).*

**City services.** The City of Skagway is the largest year-round employer, with 10 departments and approximately 40 year-round employees; this increases to approximately 70 during the summer season (City of Skagway no date). The only medical service provider in the area, Dahl Memorial Clinic, is also city-owned, with three full time and two seasonal providers (more below). Nearly all the departments make use of seasonal staff; this includes the Convention and Visitors Bureau (two full-time, three seasonal staff), the Police Department (seven full-time and four seasonal employees, including two seasonal police officers), the Volunteer Fire Department (two full-time paid staff, three part-time, and a seasonal EMS responder), the Harbor (one full-time and one seasonal), and Public Works (seven full-time and four seasonal). The Fire Department depends on approximately 36 volunteers in the summer and 10-20 in the winter.

Local schools are also affected by the seasonal population (Brady 2004). The Alaska Department of Education (DOE) counts the number of students enrolled in mid-October to determine funding levels. The Skagway school district typically lost around 20 percent of its student population between the start of the school year and the end of the tourism season; these seasonal students return March-May. That meant that the schools provided education for the seasonal students but did not receive any State funding for them; the city lost an estimated one million dollars over the previous decade. In 2004, the school system received a waiver from the DOE to change the count period to mid-September to capture some of the seasonal population. However, the school system must request the waiver on an annual basis.

City services are funded in part by a 4 percent sales tax and an 8 percent hotel tax, with the majority of tax revenues earned during the summer tourism season. The Skagway Municipal Code permits the unobligated remainder of sales tax revenues to be used “for services responding to visitor impact including, but not limited to emergency services, clinic, and museum”(City of Skagway 2005). A 2005 ordinance amended the code to permit and prioritize the funding of medical service delivery, after repayment of obligations and school funding. The city also receives “payments-in-lieu-of-taxes” (PILT) revenues from Federal lands that aid “in funding services such as medical clinic operations, search and rescue and fire training.” In 2002, the City of Skagway received \$91,686 (as an independent city outside of an organized borough, Skagway directly receives the PILT monies).

In 2001, a proposed seasonal increase in summer sales tax (to 5 percent) and omission of sales tax during the winter was debated, but the measure was defeated (Collins 2001b; Lavrakas 2001a). The city later passed an ordinance allowing the City council to declare a “sales tax holiday” between October and March, where no sales tax is paid on purchases made in Skagway (Lavrakas 2001b). In 2004, the Council declared the period of November 20-December 31 a sales tax holiday. The seasonal tax debates reveal some of the tensions between the permanent and seasonal residents, as well as the burdens imposed on city services during the tourism season.

**“Locals prefer winter.”** A seasonal economy brings a seasonal rhythm to community life, which in Skagway is suspended for the summer, resuming after the tourist season ends. November-December is the “high social season,” when residents have time to relax and decompress, reconnect with friends and family whom they may not have seen all summer, and

hold community events. After the winter holidays comes a quiet period, where people rest and prepare for the upcoming summer onslaught.

A common view is that Skagway has reached its maximum capacity to receive tourists, perhaps exceeded it, with some fearing that residents are getting burned out. It is common for permanent residents to wear many hats, and the community is well-known for its high rates of charitable giving and volunteerism. During tourist season, residents are overextended, working “ungodly hours in summer.” One fears a decline in volunteerism as well as some backlash against tourism.

## **Health Services**

Dahl Memorial Medical Clinic is city-owned, with management services contracted to Bartlett Regional Hospital in Juneau. However, the clinic has been in transition for a number of years. Although the facility has always been city-owned, it had previously been run by a non-profit organization; the City took over operations and contracted with Bartlett in 2003 (Brady 2003; Anonymous 2004; Cremata 2004; Cremata 2005a). These changes have been accompanied by a number of personnel changes and temporary staffing shortages. Respondents could discuss the changes and the present situation, but not describe a “typical” or “normal” situation, making analysis of seasonal impact more difficult.

At this time, the clinic operates with a full-time administrator, two full-time and one seasonal (locum tenens) midlevel providers (physician assistants and/or advanced nurse practitioners) contracted through and overseen by a Medical Director at Bartlett. The clinic hopes to replace the seasonal position with a third full-time position, so as to enable the clinic to remain staffed by two providers when one takes a vacation. Other clinic staff, and a receptionist/billing clerk are city employees. Services offered are described as routine family medicine, emergency room care, urgent care, x-ray facilities, laboratory services, and a limited dispensary. However, services are also described as “limited,” and emergencies are generally stabilized and transported to Juneau. Services available through Bartlett include access to the hospital pharmacy, laboratory, and diagnostic imaging.

*“It’s frightening in the summer . . . We don’t have the equipment for emergency care. If they need a blood transfusion, they’re dead. We don’t have the technology to save lives” (Cremata 2004).*

Some specialized providers visit from Bartlett and use the clinic facilities: a pediatrician comes every 1-2 months; a nurse provides wellchild care and vaccination clinics; an internal medicine specialist visits quarterly, and a counselor comes once a month. A visiting independent dentist rents space in the clinic. Current plans call for trying to get more visiting physicians, including a general practitioner. One informant noted that a single visit by a GP could save 30 people a very expensive trip to Juneau.

Clinic hours are 9-5 p.m., MTThF; 9-12 a.m. W, and 24-hour emergency response. In 2004, the clinic saw approximately 3,000 patients. In the winter, the clinic sees an average eight to ten

patients per day; in the summer that number climbs to around 12-20 patients a day, representing an increase of 40 to 50 percent. Extended summer hours were proposed, but are not currently offered. In general, the clinic operates on an appointment basis; however, summer/seasonal people are also seen as walk-ins.

There is no retail pharmacy in Skagway. The clinic dispensary has a limited drug list and can only provide medications to clinic patients; it cannot fill prescriptions for residents or visitors. On occasion when a visitor needs an emergency prescription refill, the script can be flown to Juneau, filled, and be back in a few hours, often quickly enough for a day visitor returning to a cruise ship that night.

One informant noted that the summer population is a lifesaver for the clinic – it subsidizes the winter season. Nonetheless, collecting payment from both local and seasonal patients has been a problem. Many in both populations lack insurance, with a slightly higher rate of uninsured among the winter residents, as employment with companies drops in the winter. Most residents insured through Medicare go south for the winter. And although seasonal workers frequently don't receive health insurance benefits, they are compensated by higher wages and (often) housing. The clinic does seek full payment from seasonal patients, or a minimum of 20 percent at the time of service. For insured patients, another problem is that the clinic is not currently a member of a preferred provider organization (PPO) in any insurance plan. Some residents travel to larger cities to simply avoid insurance hassles. The clinic is hoping to become a member of a PPO in the near future.

**Loss of access to Canadian physicians.** Many Skagway residents previously drove to the Canadian city of Whitehorse for medical care, and particularly maternity care, as it is the nearest city accessible by road (Cremata 2005b). In 2004, the Canadian Medical Protection Association (CMPA) decided to stop providing malpractice insurance for Canadian physicians who treat non-Canadians. Unless it is a life-threatening emergency, Canadian physicians can no longer accept U.S. patients. Stories chronicling the plight of pregnant women who can no longer deliver in Whitehorse, or accident victims seeking care but having to turn around and go to Juneau, appear in local and regional newspapers (Cremata 2005b; Hedrick 2005; Keeker 2005). Canadian physicians who have long treated Skagway residents are seeking exemptions, but until that happens, Skagway residents must find alternative sources of care. Although many Skagway residents are accustomed to seeking medical care in Juneau, Anchorage, or Seattle, the loss of access to care in Canada represents additional financial hardships as the costs of transportation and lodging in these distant cities multiply the costs of care.

Losing access to Whitehorse physicians has also changed the debate surrounding a proposed highway project to connect Juneau and Skagway. A 2003 survey found that although 83 percent of Skagway residents wanted improved access to Juneau, the majority (55 percent) supported improved ferry service over a road (State of Alaska 2003). Skagway residents have protested against the road. Some protested on economic grounds, fearing the road could bring the demise of the cruise ship tourism; others protested on environmental grounds. Most, however feared changes to quality of life and community identity: "...most people's concerns regarded a decrease in public safety, increase in crime from Juneau, increased economic leakage, a downgrading of the Skagway Port's position as the gateway to the Yukon, a decrease in the quality of life, environmental concerns, and that Skagway would become more of a truck stop

than a destination.” However, some residents came to support the road because they could no longer drive to Whitehorse for healthcare, and now found dependence on air and sea transport to Juneau to be too limited, expensive, and unreliable.

The proposed Juneau-Skagway road will not be built. As this report was being prepared, the National Park Service declared some of the lands surrounding Skagway as “contributing elements” of the White Pass National Historic Landmark. This action has virtually eliminated the possibility of building a road to Skagway, and led the Department of Transportation to drop the proposal to build a road to Skagway. The alternative proposal is now to build a road to a ferry terminal at Katzechin. Skagway residents would still have to take a ferry to Katzechin to access the Juneau road (Brady 2005).

**Medical transport to Juneau.** While there are two local air transport companies, the contract with Bartlett Regional Hospital requires that a Bartlett helicopter – sent from Juneau – be used except in extreme emergencies. A typical air transport would thus take at least two hours. When a local air transport is used, flight time is one hour. These helicopters are not equipped to fly at night, however; as it gets dark at 3:00 pm in the winter, air transport becomes less viable. In extreme emergencies, a Coast Guard helicopter is the only option, as it is equipped to fly at night.

Three commercial air services fly out of Skagway to Juneau, with round trip fares of approximately \$150. Typical winter weather also creates hazardous conditions for flying, frequently closing airports. Outbound and return flights are often delayed by a day or more; for patients and their families stuck in Juneau, that means spending more money on hotels. Many residents prefer the ferry system, which can range from \$50-60 per person to around \$300 for four people and a jeep. The slow ferry takes approximately six hours, and the fast approximately two hours. Ferry schedules are greatly reduced in the winter.

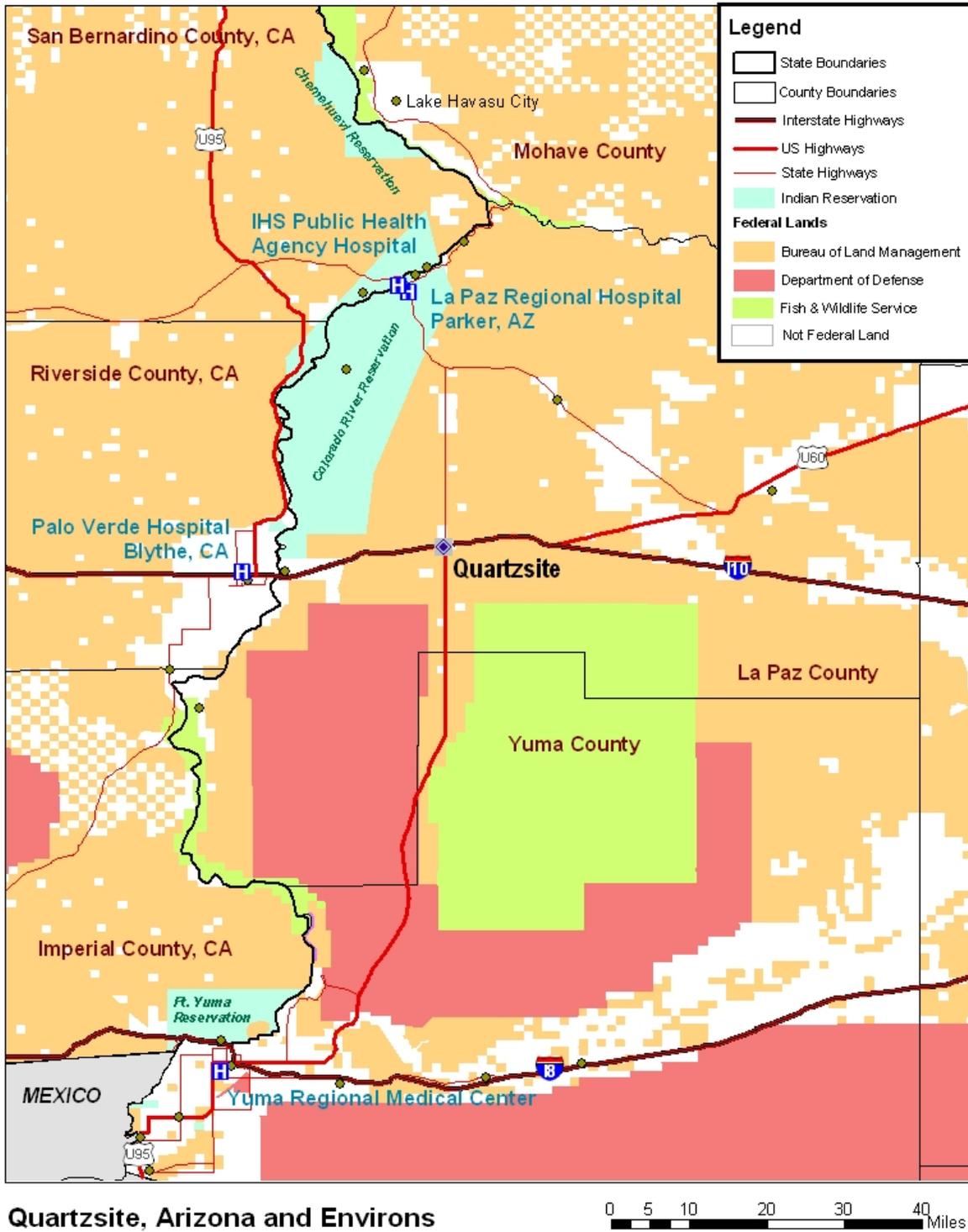
**Seasonal variation in healthcare needs.** In the summer, the clinic sees more lacerations, sprains, broken bones, injuries associated with the biking, hiking, and climbing activities of the seasonal residents and visitors. The clinic sees more airlifts in summer than winter because of these types of injuries. For example, in the week before the interview, two separate bicycle accidents required the patients to be air evacuated, one for a broken femur and another for a head injury. Earlier in July, a climbing guide fell approximately 50 feet (Collins 2005b). Because a number of the seasonal residents are students, the clinic treats a higher number of STDs. Respiratory conditions and the flu round out the summer illness profile. In the winter, the clinic sees mainly respiratory conditions.

**Future plans.** A new clinic building is planned with construction expected to begin in the next year. Land for the clinic was donated by a local bank (Wells Fargo Alaska), which will expand the number of exam rooms from three to nine, offer permanent space for counseling services, and create more space to attract visiting specialists. The clinic received a grant to purchase a new x-ray machine, which will enable the digital transmission of x-rays to Bartlett.

Creating housing at the new clinic for visiting, seasonal, or newly arrived staff is a high priority as well (Collins 2005a). The issue of housing was mentioned by one former staff member as a cause of personal dissatisfaction, as well as a barrier to recruiting the locum tenens provider

when the city was reluctant to “be in the housing business” (Cremata 2005a). The locum tenens provider did receive housing as part of the contract this year.

## CASE 2: QUARTZSITE, ARIZONA



Quartzsite isn't just a town, it's a phenomenon. Time, National Geographic, Trailer Life Magazine – all write stories about Quartzsite. The town is located in the Arizona desert 125 miles west of Phoenix, north of Yuma and near the border with California, just off of Interstate 10. Although the town has grown to 3,400 residents, this number is dwarfed in the winter when the snowbirds and rock hounds arrive for the annual “Senior Citizen Pow-wow,” “Snowbird Jamboree,” and the Quartzsite Gem and Mineral Show, also known as “the world’s largest flea market and RV show.” Thus Quartzsite’s seasonal population increase is a combination of winter residents and special event populations. The peak period is during the gem show, when rock hounds join the snowbirds for approximately two weeks. The town hosts nine major gem and mineral shows throughout the winter. Although the snowbird phenomenon affects the entire State of Arizona, Quartzsite is different both in the small size of the host community, and the fact that so many winter residents and visitors stay on public lands.

La Paz County is approximately 78 percent Federal lands, mostly Bureau of Land Management (BLM) lands. The BLM offers two options for camping near Quartzsite (Quartzsite Chamber of Commerce 2004). Five designated areas offer free “boondocking” (dry camping, no services) for up to 14 days; after that, BLM rules require that campers move at least 25 miles to continue to camp for free. The other option is the La Posa Long Term Visitor Area (LTVA), an 11,400 acre area located two miles south of the town, with limited services (trash, RV dump, and limited water). The permit costs only \$25 per week, or \$125 for the entire season (September 15<sup>th</sup>-April 15<sup>th</sup>). In addition, there are an estimated 60-75 private RV parks in the area.

**“A metropolis in the winter.”** The large winter population has led some observers to call Quartzsite “Arizona’s third largest city in January.” Estimates of the winter population vary wildly. One estimate of the peak population is approximately 250,000; a recent fly-over count of RVs put the estimate at 2 million. The Chamber of Commerce estimates over 1 million seasonal residents and visitors per year. These varying estimates reflect the difficulty in counting not only seasonal residents but also tourists who stay on public lands, and the lack of methodologies to count mobile residents (RV campers on public lands are not included, for example, in the Annual Winter Residents Survey conducted by the Center for Business Research at Arizona State University (Hogan, Happel et al. 2003)). Long-term visitor area permits on Quartzsite area BLM lands, for example, averaged 8,650 per year between 1995-2000. Winter residents who increasingly stay in single-family homes, condominiums, apartments, hotels, motels, or with friends and relatives are not counted either.

The town infrastructure is not designed for this population. Thus in addition to the elected City Council, the seasonal population has its own Quartzsite Improvement Association, with its own office that manages the seasonal population and schedules its own activities and events. The scale of the seasonal population enables the visitors to develop a transient community, distinct from the town of Quartzsite, with its own alternative economy. While the two worlds overlap, and the town does benefit from the presence of the seasonal population, it appears that this separation remains a key challenge for planners of public services.

The two largest employers in Quartzsite are the Town of Quartzsite and the Pilot Travel Center (Arizona Department of Commerce 2004). Many retail and travel service providers hire seasonal employees. Sales tax is high, a total of 9.21 percent, although only a small proportion

goes to the town. The State charges a 5.6 percent “transaction privilege” sales tax, another 1.11 percent sales tax goes to La Paz County, and Quartzsite charges a 2.5 percent sales tax (Arizona Department of Commerce 2004). This tax structure limits the town’s ability to support local services from sales revenues generated by the seasonal population.

## **Health Services**

Residents of Quartzsite are served year-round by the La Paz Regional Hospital in Parker and its satellite clinic in Quartzsite, La Paz Medical Services. The clinic is open 8 a.m.-5 p.m., Monday - Friday during the busy season, but operates only three days per week during the summer. It is currently staffed by one midlevel provider; there is no lab or x-ray equipment. Conflicting statements about service availability (full time vs. part-time hours) have resulted from a provider vacancy.

Valley Medical Services is a private clinic open only two days a week; services are provided by a physician who has another clinic in the nearby town of Blythe, California. Between October and March, another private clinic, the Quartzsite Medical Center is open; its two physicians work only during those six months. The EXCEL Group is a regional mental/behavioral health provider based in Yuma, with services in Quartzsite. There is no pharmacy in town.

La Paz County is a federally designated Primary Care Health Professions Shortage Area (HPSA) and Quartzsite a Federal Medically Underserved Area (MUA) (Arizona Primary Care Area Program 2005b; Arizona Primary Care Area Program 2005a). In the Quartzsite Primary Care Area, as designated by the Arizona Department of Health, the “next nearest providers” are located in Parker (35 miles, estimated travel time 41-60 minutes), and Lake Havasu City (travel time over 80 minutes). Health services in Blythe, California are approximately 20 miles west of Quartzsite (Blythe is actually closer than Parker). Palo Verde Hospital in Blythe provides a toll-free telephone number for calls from Quartzsite. Residents and visitors may also go to Yuma or Lake Havasu City. A large segment of both year-round and seasonal residents are veterans, who must travel to Yuma, Phoenix, Tucson, or Lake Havasu City to make use of Veterans Administration (VA) medical services.

Fire and emergency services are funded through local property taxes. A medivac heliport is located at the Fire Department with 24-hour EMT service; helicopters must be sent from Parker, Blythe, and/or Yuma depending on the nature of the emergency, the number of persons involved, and the availability of beds at receiving hospitals. Two major air ambulance services are TriState Care Flight and Native Air (Arizona Rural Health Office 2005). In 2004, TriState Care Flight responded to 96 calls in Quartzsite, and Native Air responded to 40 calls (136 calls total).

Quartzsite is served by a private ambulance service, River Medical, which reports 800 calls per year for Quartzsite (Arizona Rural Health Office 2005). Approximately half of hospital transports go to Palo Verde Hospital in Blythe, the other half to Parker (either to the La Paz Regional Medical Center or the Parker Indian Health Service Hospital). The high season for calls is November-March; in 2004, 395 medical aid calls occurred in January-March and October-December, compared with 181 calls for April-September. Forty-four percent of calls were made between January-March. On the other hand, motor vehicle accident calls were fairly

even throughout the year (147 calls in 2004), with the highest number reported for July-September (42).

The limited health services in Quartzsite are not a barrier to the many seniors who come to Quartzsite for the winter. Although most are retired, “snowbirds” tend to be younger and healthier on average than the general retired population (Longino 1995). Many have regular physicians in their summer communities, have their annual visits before they come, and bring a supply of medications with them. Because they are mobile anyway, they have no trouble traveling to a metro area if they should need to seek care. And many come to Arizona with the intent of going to Mexico for their healthcare needs.

*Most of Quartzsite’s millions of winter visitors are RVers – already on wheels – and travel to Los Algodones, Mexico (just south of Yuma) for healthcare and prescriptions.*

Nonetheless, given the number of winter residents and visitors, and the town’s location at the crossroads of a highway and an interstate, many accidents and emergencies occur, and the congestion increases the frustrations experienced by locals. One respondent reported that during the peak period in late January, the Fire Department was called to respond to accidents on the highway nearly every day. While this may overstate the case, it does reflect community members’ anxiety over the distance to emergency medical services.

**Community initiative.** In 2004, a Town of Quartzsite representative requested assistance from the Resource Conservation & Development Council (RC&D), a non-profit organization. The town was concerned about a shortage of medical facilities and services, particularly in the winter, and wanted help with research to guide the town in future planning and decision making regarding health services. In partnership with the RC&D, the Arizona Rural Health Office (RHO) based at the University of Arizona Mel & Enid Zuckerman College of Public Health, and the La Paz Regional Hospital, the town set out to determine needs and identify possible solutions using a variety of research methods, including key informant interviews, secondary data, focus groups with both seasonal and year-round residents, and questionnaires.

*Unfortunately if you have an emergency in Quartzsite, it needs to be a day that there is a Doctor at one of the clinics in town which is not very often. If you are fortunate and there is a Doctor on the day you need emergency treatment, he will most likely have to send you to Parker Hospital or to Blythe Hospital as there is not emergency staff or emergency equipment at the two clinics in town. (Statement on Town of Quartzsite website, Town of Quartzsite 2005)*

Investigators report that many residents are frustrated with difficulties in getting appointments and the lack of full-time providers and difficulty getting timely appointments. Specific service

deficiencies identified included the lack of a pediatrician, the lack of a pharmacy, and no place to get oxygen tanks refilled. Residents expressed a desire for a walk-in urgent care center.

Primary care service gaps in Quartzsite identified through the key informant interviews include: limited knowledge of available services, emergency care/urgent care; dental and nutrition services for children; a full-time, year-round physician; obstetrical care; elder care; and transportation services. Other service gaps included physician specialists, in-home care, pharmacy, x-ray, physical therapy, mental health services, and a residential convalescent unit (Arizona Rural Health Office 2005).

In August 2005, the project presented its findings and recommendations to the Town of Quartzsite and its project partners. A number of short- and long-term recommendations were made to improve health services for both year-round and seasonal residents.

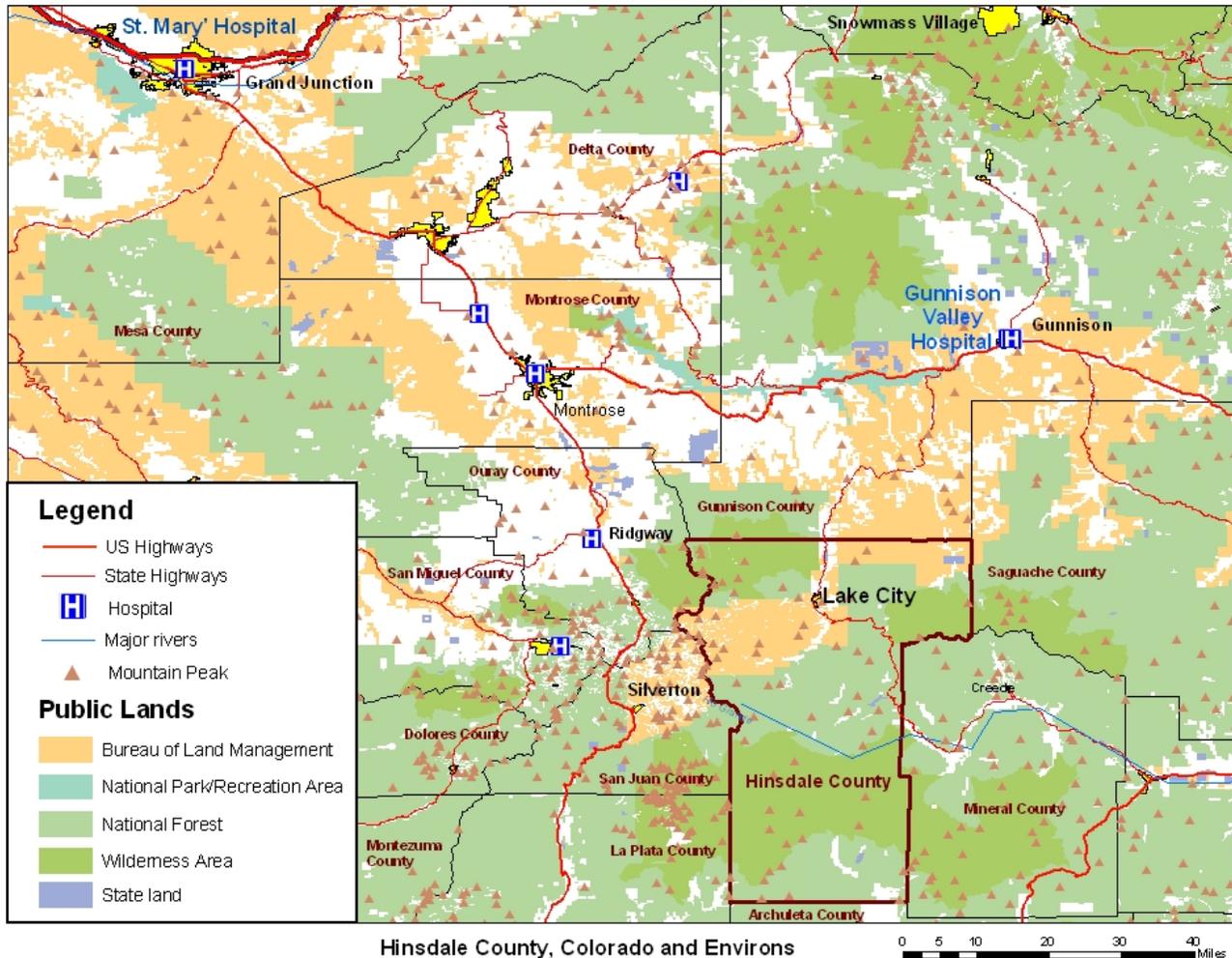
**Table 2: Recommendations to Improve Health Services in Quartzsite**

<b>SHORT TERM RECOMMENDATIONS (1 YEAR)</b>	
<b>Issue</b>	<b>Recommendation</b>
<ul style="list-style-type: none"> <li>• Many residents not aware of all available services</li> <li>• some services underutilized</li> </ul>	1.0 Develop & distribute publication outlining available services
<ul style="list-style-type: none"> <li>• La Paz Regional Hospital (LPRH) operates La Paz Medical Services clinic</li> <li>• LPRH is hiring a new physician to start in 2005.</li> </ul> <p>Access to physicians and allied health professionals is a problem in Quartzsite</p>	2.0 Town of Quartzsite & LPRH should collaborate and plan for how the new physician can best serve Quartzsite residents 2.1 Planning should include adequate allied health support
<ul style="list-style-type: none"> <li>• Residents have difficulty accessing services due to limited office hours</li> </ul>	3.0 Expand hours of operation at LPRH clinic
<ul style="list-style-type: none"> <li>• Variations in methodologies, estimates for reporting increase in winter population</li> <li>• A consistent methodology would assist the development of community services, infrastructure</li> </ul>	4.0 Review methodology for estimating seasonal population variations. 4.1 Adopt a consistent methodology to estimate the seasonal population change
<b>LONG TERM RECOMMENDATIONS (1-3 YEARS)</b>	
<ul style="list-style-type: none"> <li>• Quartzsite has multiple community assets including community leadership, economic activity, potential for economic growth</li> <li>• Common view among community stakeholders represent a strong awareness of need to address healthcare issues</li> </ul>	5.0 Form coalition to study economic impact of the healthcare sector in Quartzsite
<ul style="list-style-type: none"> <li>• Numerous options suggested for funding additional health services</li> <li>• Fundraising and grant seeking among options to consider</li> </ul>	6.0 Continue to seek and develop funding strategies including grants/loans and local resource development
<ul style="list-style-type: none"> <li>• Local tax might be a method to fund additional health services</li> <li>• Potential healthcare tax could be supported by a combination of full-time residents and winter visitors</li> </ul>	7.0 Explore feasibility of local healthcare tax

Source: Quartzsite Health Care Assessment: Demographics, Utilization, and Needs (Arizona Rural Health Office, 2005).

Many of these recommendations are targeted toward improving the overall level of health services available to residents of Quartzsite. Other ideas that emerged in discussions included the establishment of mobile clinics that serve special populations (e.g. veterans) or MASH-type units that go where seasonal needs dictate.

### CASE 3: LAKE CITY / HINSDALE COUNTY, COLORADO



Hinsdale County is located in southwest Colorado, bordering on Gunnison, Saguache, Mineral, Archuleta, La Plata, San Juan, and Ouray counties. Hinsdale has the 3<sup>rd</sup> smallest population in the State and the 15<sup>th</sup> smallest in the U.S. Lake City, the only town in the county and the county seat, is a National Historic District, one of the largest in the State of Colorado. The majority of county residents live in or within 15 miles of Lake City. “Sub-communities” include Cathedral (ranching, outdoor recreation, backcountry access), the Rio Grande area (summer homes, resorts, wilderness), and the Upper Piedra (ranching, seasonal homes) (Grice 2005b).

The county is 97 percent public lands (96 percent is Federal land), principally national forest and wilderness areas. The public lands are the foundation of the community’s economic prosperity (Grice 2005e), as well as a source of community identity and pride. They are simultaneously at the root of a number of economic and community development challenges, including seasonality

and boom-and-bust cycles (The Wilderness Society). The principle economic activity of the area has evolved from mining to ranching and now to recreation and tourism.

*“Except during the summer season, there are very few businesses and services open in town.” “Driving 55 miles to get groceries gets old, especially in the winter.” (Stakeholder interviews, quoted in (Grice 2005f))*

The county is in the heart of the San Juan Mountains, with Lake City at 8,700 feet. Flyfishing is a major attraction, and private lands are purchased for fishing rights to the Lake Fork of the Gunnison River and Henson Creek. Limited public access drives demand for private access. Outdoor tourism and recreation attractions include Jeep trails, off-road vehicle trails, and hiking trails.

As the map indicates, only one primary road runs through Hinsdale, classified as a State rural highway. This road connects Lake City with the town of Gunnison, where the nearest hospital accessible year-round by road (60 miles) is located. There is no public transportation to Gunnison. Lack of roads is perceived as an obstacle to economic development (Grice 2005c). Air service out of airports in Gunnison (a one hour drive) and Montrose (a two hour drive) is expensive. Other local, seasonal and backcountry roads exist, but require off-road vehicles and may only be open part of the year. The “Alpine Loop” to Silverton, for example, looks like a short 35-40 miles, and its scenic byway designation entices many motorists. However, it takes about four hours to travel to Silverton over a seasonal mountain route of switchbacks and 12,000 foot passes. Public safety officials are frequently called to rescue motorists caught unaware in unsuitable vehicles.

The year-round county population of 760 may quadruple between June and September, when an estimated 1,000-3,000 summer residents arrive. Most are characterized as the “young retired,” around 55 years old, and many do part-time work. Non-labor income represented 48 percent of total personal income in 1997, indicating a growing retirement community (The Wilderness Society). Most are second homeowners, escaping the heat of Texas and Oklahoma. Many of these are RVers who stay on both public and private lands. Many short-term visitors are campers who return year after year, often to the same campground or RV park, or rent the same cabins.

**Lake City and Hinsdale County Comprehensive Plan.** Beginning in January 2005, Lake City and Hinsdale County initiated a joint planning process to develop a comprehensive plan to provide “sound demographic and land use pattern guidance for local infrastructure planning and land use decisions for the next 20 years” (Grice 2005a). Although the project is not yet completed and documents are preliminary, the vision statement includes the development goal of a year-round economy. A number of strategies will be explored to even out the seasonal swings, including promotion of winter tourism, finding ways to convert seasonal residents to year-round residents, and strengthening the telecommunications infrastructure and promoting telecommuting.

### **Community Plan Vision Statement**

**We envision the preservation and enhancement of the historic, Lake City/Hinsdale mountain community, a place where local officials and citizens work together to protect community character, quality of life and the environment, and to develop a year-round economy, consistent with community values and interests.**

Source: Lake City and Hinsdale County Comprehensive Plan Project Page, Available: <http://www.fourcornersplanning.com/Hinsdale.htm>

While many residents appreciate that the public lands limit growth and contribute to the maintenance of their small-town community, they recognize how these limits contribute to their development problems. Public lands reduce the taxable base, and the limited expansion potential has driven up land values and rents. This in turn has contributed to a shortage of affordable housing for year-round residents, as well as seasonal employees who work in the low-wage tourism sector. One stakeholder noted that “Commercial rents are high relative to length of seasons” and that “Occupancy costs far exceed the net profit on commercial property” (Grice 2005f).

The community desires greater involvement in public lands management decisions, both for their impact on the tourism and recreation economy, and for the impact on local community access. In the stakeholder interviews for the Comprehensive Plan, respondents had a great number of comments regarding the management of public lands and the impact on their community. One commented that the new Recreational Access Tax (\$78) imposed by the Forest Service on recreational users effectively “restricts many low and moderate income people from using the forest” (Grice 2005f), including the people who live there. Many feared current and future restrictions on recreational activities would harm their economy and lifestyle.

*Concern about the lack of a year-round economy and the potential impact of new growth has increased as residents have experienced difficulty in managing even limited growth, attracting and retaining young families, filling teaching positions, and making a reasonable living for their families (Grice 2005d).*

Another issue involves a number of non-profit organizations buying land adjacent to public lands. One respondent noted that while the community welcomes these organizations, their non-profit status exempts them from paying taxes on these properties, yet they still use county services. With a limited taxable land base to begin with, these organizations are perceived to put a strain on local services (Grice 2005f).

In stakeholder interviews for the comprehensive planning process, respondents noted that their strong sense of community involved high levels of volunteerism as a prominent characteristic of their community, both year-round and seasonal residents; one respondent commented “Seasonal residents are huge contributors of time, talent, and financial resources to local community

organizations” (Grice 2005b). The volunteers who staff the museums are largely seasonal residents.

The Lake City School has 77 students and operates on a four-day week throughout the school year. Students attend longer hours, but have Mondays off for personal time, for example, to go to doctors’ appointments, because of the time involved in traveling long distances.

### **Health services**

Lake City Area Medical Center is a federally-certified Rural Health Clinic (RHC) staffed by a physician offering primary care, urgent care, minor surgery, and sonography. Ambulance service is available 24 hours per day. The nearest hospital, approximately a one-hour drive, is Gunnison Valley Hospital (GVH), a 24-bed, acute care hospital, 24-hour Level IV Trauma center, owned and operated by Gunnison County. GVH is a Critical Access Hospital (CAH). If more specialized care is required, St. Mary’s Hospital and Regional Medical Center in Grand Junction is the largest medical center between Denver and Salt Lake City. It is also a Level II trauma center with air service; otherwise it is a 3-hour drive from Lake City. A partnership with Gunnison Valley Hospital brings a visiting physical therapist, mental health provider and behavioral health counselor to the Lake City Medical Center. The clinic has a pharmacy outlet to provide patients with necessary drugs, but there is no retail pharmacy in Lake City. Patients must have prescriptions refilled in Gunnison. Residents must also go to Gunnison for dental care.

A new county public health office has opened in Lake City and is staffed by a public health nurse. It offers supplemental food programs, health promotion/education programs, family planning and reproductive health services including screening programs, support services for new mothers and babies, and other special programs. The county public health office is minimally affected by the seasonal population; they occasionally see a person “who needs shelter, food, or just a blood pressure taken.”

Veterans who wish to use VA health services face some hardship. The nearest VA clinic is in Montrose, about a 1 hour drive in the summer and 2 hours in the winter. The nearest VA Hospital is in Grand Junction (3 hours), and the nearest VA dental clinic is in Colorado Springs, a 4-5 hour drive when the mountain passes are open.

In 2002 voters approved a ballot initiative to create a special tax district, the Lake Fork Health District, to fund clinic operations. The clinic had previously operated as a non-profit. The district covers Lake City and the southern portion of Hinsdale County. In addition to patient revenues, the clinic is now supported by a 3 mil property tax and a 1 percent sales tax that each generate approximately \$90,000 per year. In addition, a grant from the Caring for Colorado Foundation currently supports one midlevel practitioner position.

Changes in the management and oversight of the clinic have recently resulted in major personnel changes and a reconfiguration of staffing. From June-December 2004, a locum tenens provided coverage, along with providers from other communities, while new staff were recruited. Two husband-wife teams currently provide clinical services for 7 days a week: a physician (who also serves as the clinic administrator) and an ultrasound/medical technician, and a PA/RN team. The

providers make house calls when a patient finds it difficult to travel to the clinic. The physician previously had a practice in South Fork (approximately 1 hour south of Lake City), and many of his former patients now come to Lake City for care.

The number of patients seen in the clinic was reported as fairly consistent, although numbers peaked in July with about 350 patients, in contrast with the low point in January with about 184 patients (including those who came for flu shots). Because of the many recent changes, the Board does not know yet whether the clinic will need to make any seasonal adjustments to clinic staffing. In the past, volunteers were frequently called on in the summer to assist with increases in paperwork.

The age and composition of the seasonal population is similar to the year-round population. Seasonal residents are considered to be generally healthy, as “active lifestyle retirees.” Given the high altitude and their age, a number of health problems associated with seasonal residents and visitors result from a “weekend warrior” (or “seasonal warrior”) type syndrome and expectations of strenuous activities. Altitude sickness has the greatest impact on the elderly, and many don’t realize the impact of altitude on their physical abilities.

Another recognized phenomenon is the summertime strep throat outbreak. One respondent suggested that the high-density, close living conditions in the campgrounds were responsible for the outbreaks.

**“Lots of stitches and broken bones.”** By far however, the most common health issues involved accidents related to outdoor recreation, with little difference in type of injuries between the permanent and the seasonal population. With seasonal residents, providers see the “same thing, just do it more often.” Currently, most patients with orthopedic injuries or requiring simple surgery are transported by ambulance to the hospital in Gunnison. Summer is the most taxing on the emergency services group. Only one position is paid, the rest are volunteer workers. EMTs and the Search And Rescue (SAR) team are largely the same people. One roundtrip ambulance trip to Gunnison will take the volunteer crew approximately 4 hours; in 2004, there were 60 ambulance runs. The clinic is applying for a grant to buy an x-ray machine with digital capabilities; having (the) x-rays read via telemedicine will allow treatment of some injuries in Lake City, and save a lot of ambulance trips. The ultrasound machine has already saved several patients a trip to Gunnison.

*“[The] Ambulance crew runs day and night to support seasonal residents.”*  
[Stakeholder quoted in (Grice 2005f)]

More serious accidents – for example, if an ATV goes over a cliff – will be airlifted to St. Mary’s in Grand Junction. If it will take a long time for the helicopter to arrive, the patient is transported to Gunnison, stabilized, and then flown out of Gunnison.

Residents enjoy the same outdoor activities, but are busy in the summer working 2-3 jobs. In addition to the summer activities, fall brings accidents related to hunting, and winter brings

snowmobiling. Because of peak volumes in summer, residents are encouraged to schedule routine care during winter months. Clinic providers are not permitted to take vacation in the summer, between June 15-Sept 15; this is written in the clinic's personnel manual.

The Lake Fork Health District has plans to expand the clinic facility. Currently the providers share the clinic with EMTs, SAR groups, and visiting providers from Gunnison. The clinic also hopes to recruit more visiting specialists in the future, including an orthopedic specialist, a dermatologist, and a dentist.

The Lake City and Hinsdale County health services are considered an asset to the community. Over the past five years, a number of health-related community improvement projects have been undertaken, including the opening of a county public health office, the creation of the Lake Fork Health District, a refurbished helipad at the health center, purchase of a new ambulance, and an increase in the number of handicapped accessible facilities (Grice 2005b). Many of the Lake City residents who previously went elsewhere are now using the Lake City services. Although some were initially skeptical about the health district, residents are reportedly extremely happy to have a 7-day per week clinic; this has reduced the number of emergency calls at night and on weekends. Two recently deceased community members have left their estates to the Lake Fork Health District.

### III. DISCUSSION

In all three communities, health services are very limited. Individuals requiring frequent, intensive, or ongoing specialist care have no practical means of remaining in the community. Hinsdale was the only community to have a resident year-round physician, and only for the past 6 months. None have a pharmacy. Year-round and seasonal residents alike are accustomed to seeking health (and other) services elsewhere, paying high costs for transportation and lodging in addition to medical treatment, often without insurance.

While there are many similarities among the three case study communities, there are some important differences. One is in the economic status of the seasonal residents and visitors. Skagway's tourism is "high end" cruise ship tourism; tax revenues generated from the cruise ship industry help support city services for year-round residents. In contrast, many of Quartzsite's seasonal residents and visitors are drawn by the opportunity to live extremely inexpensively on Federal lands. Although it is a common perception that RVers are financially well-off, the RV / snowbird lifestyle also draws many with fixed or limited incomes, as it is also possible to live more economically in an RV than in fixed housing. Quartzsite RVers include a full range of incomes and avail themselves of a range in quality of accommodations, yet on the whole may be considered "low end" tourism. By choice or necessity, thousands "dry camp" without services on Federal lands, create their own communities, and contribute less to the Quartzsite economy than their numbers might suggest. Because they are mobile and because of the range of options available to RVers, local initiatives to generate revenues from the seasonal residents and visitors can easily be circumvented.

**Constant change.** A good deal of conflicting information existed on available health services. The number of providers and days of operation, for example, are "moving targets." In frontier communities, small numbers mean that one change can have a major impact. Attempting to develop a profile of the "normal" situation was difficult in all three cases, as change was a common theme. Moreover, given lengthy recruitment times, community informants were not always aware of intent to replace long-departed staff members or recruitment efforts underway to add staff. Administrators counted positions even if currently vacant; community members did not.

**Seasonal vs. permanent – overlapping categories.** "Seasonal populations" include permanent residents. In Skagway, part of the summer influx is the return of snowbirds who leave for the winter, yet these snowbirds may be permanent residents. Similarly in Quartzsite, many residents depart for cooler climates in the summer; residents of southern communities who move north for the summer are often ignored in snowbird or seasonal population research (McHugh, Hogan et al. 1995). Some are healthcare workers who enjoy a seasonal lifestyle as well.

**Financing medical services.** Although Quartzsite was the only community to have privately owned medical services, private providers respond to the seasonal market, and they also respond to the lack of one. One clinic was open year-round, but only two days per week. The other was full-time during the winter season only. Both Skagway and Lake City/Hinsdale have found mechanisms to publicly support a year-round full time clinic and upgrade its capacities. Quartzsite is in the discovery process of attempting to do the same, yet differences in State and

local government make it clear that a solution in one place cannot easily be transplanted to another. Where seasonal populations generate local government revenues, publicly supported health services benefit. In the case of Skagway, sales tax revenues generated during the summer season effectively subsidize health services for the year-round population. Skagway also benefits from Alaska's unique circumstances (oil wealth) and special development initiatives such as the Denali Commission. The clinics in Skagway and Lake City both benefited from philanthropy. In contrast, both the year-round and seasonal populations in Quartzsite are older and less wealthy, with seasonal visitors coming for the flea markets and bargain-hunting. While Quartzsite residents seek to improve services, "locals can't afford it and seasonal residents don't want to pay for it" was a common complaint.

**Managing fluctuations in supply and demand.** In all three communities, vacations are scheduled during the off-season. In Arizona, one hospital managed the seasonal variation by staffing for the peak season, and then managing the drop in demand during the off-season by approving extended vacations (paid) and leaves-of-absence (unpaid) during the off-season. In effect, many of the staff were "seasonal" although permanent employees. This hospital was considered one of the best-run rural hospitals in the State. Among employees who could afford it, the opportunity to take 2-3 months off and escape the Arizona summer is considered a benefit; healthcare providers enjoy a seasonal lifestyle as well. Only one community actively managed demand by encouraging year-round residents to schedule routine healthcare appointments during the off-season. A four-day workweek was another local response to the need to travel long distances for services.

Surprisingly, only one community reported the use of a locum tenens provider to meet the needs of seasonal populations. The immediate need to fill a vacancy at the start of the summer season prompted the City of Skagway to approve one locum tenens provider and eventually agree to provide housing. Although the locum tenens system was specifically developed to meet these short-term staffing needs, it was viewed as an undesirable solution to a perennial problem.

Reciprocity between "summer" and "winter" communities is unexplored. The possibility may exist for "winter" communities to partner with "summer" communities to share State resources. Some private providers already have seasonal practices; however, many small frontier communities lack the economic base to support private providers and must rely on public initiatives.

**Emergency services.** The greatest impact of seasonal populations is on emergency services and related infrastructure. Although characterized as "more of the same," the high-risk activities of the seasonal population stretch the local capacity for emergency response. In some ways, this benefits the locals who likewise participate in high-risk activities. Emergency response depends heavily on volunteers, who are rewarded with the high regard and esteem of the local community. In all three communities, fire/emergency responders were local heroes. All three communities had well-established emergency response systems and medical evacuation plans.

**Importance of reducing unnecessary emergency transport.** "Unnecessary" transports often resulted from the lack of local diagnostic capacity (imaging and laboratory services). All three communities wish to increase the capacity to treat accidents and emergencies locally. The ability

to diagnose and treat less serious injuries locally would reduce the need for costly transport, both in terms of money and in volunteer time. Transportation times could be lengthy and involve multiple transfers. And, these services could be quickly overwhelmed in the case of multiple casualties. They were further subject to frequent limitations imposed by weather conditions that can make both road and air travel unsafe. Further, the high costs of air evacuation (up to \$20,000 per flight) accrue to individuals, health systems, and insurance companies. For the uninsured individual, the cost of a single accident was catastrophic. For the insured, an ultimate diagnosis of a non-emergent condition could result in denial of payment.

All three communities now have high-speed Internet access, potentially enabling both consumers and providers to address health issues from a distance. Two communities await a new X-ray machine with digital capability, and anticipate the ability to provide more and better services through telemedicine and reduce unnecessary travel.

**Indirect impacts on health services.** The interrelated issues of public lands and housing shortages have indirect impacts on public services. Where limited land is available for development, seasonal demand for housing contributes to shortages and skyrocketing real estate values. “Outsiders” frequently have higher earnings, more capital, and expectations of paying higher prices. “Locals” who depend on low-wage recreation and tourism industries find themselves unable to afford housing, which in turn creates a “labor shortage” or difficulty in recruiting employees. This has an impact on local services, as salaries are unable to keep up with housing costs. Communities may experience long recruiting times, and often must come up with increases in salaries and benefits.

**Direct and indirect impact of seasonal populations on volunteers.** Year-round residents often wear many hats; community roles may change throughout the year. Volunteerism is a common feature of these communities, however volunteers are under increasing pressure to spend their time in income-earning activities. Increases in cost of living due to lack of affordable housing, and increasing requirements for certifying emergency responders may place an intolerable strain on the volunteers and threaten this important role in small communities.

**Health services, seasonality and community development.** A commonality among these communities is a constant search for ways to broaden the year-round economic activity, and lessen the seasonal swings. For example, both Skagway and Hinsdale County want to promote winter tourism to balance its summer tourism activities (Boucher 1999; Brady 2002; Grice 2005c). Increasing the range of locally available health services is considered a factor in attaining this goal.

## V. CONCLUSION

As found in the 2003 study, reliable data on seasonal populations were not available; data sources provided fragmented, incomplete, and often contested estimates of populations throughout the year. Definitional problems contributed to difficulties in estimating seasonal populations. “Seasonal populations” could include legal residents as well as visitors, temporary workers, employers, and second homeowners; housing in non-permanent structures (e.g. RV trailers) complicates counting methodologies.

In all three communities, health services are very limited; year-round and seasonal residents alike are accustomed to seeking health (and other) services elsewhere, paying high costs for transportation and lodging in addition to medical care, often without insurance. Two of the three communities have developed financial mechanisms to support the public provision of health services. The third is in the discovery process, examining options for doing the same.

While the three communities were very different, a number of important commonalities were identified:

- **Failure of markets to provide public services.** In frontier communities, the small populations, large land areas, and distance from larger markets result in a scale of economy that cannot support the private provision of services. Public response is necessary to fill gaps in service that may be provided by private providers in urban areas.
- **Volunteerism.** Volunteerism is a common feature of these communities, among both year-round and seasonal residents. Volunteerism is both a desired cultural feature and a core piece of community identity, but also a response to market failure. Year-round residents often wear many hats; community roles may change throughout the year. Increases in cost of living due to lack of affordable housing, and increasing requirements for certifying emergency responders may place an intolerable strain on the volunteers and threaten this important role in small communities.
- **Dominance of public lands.** All three communities are surrounded by a high proportion of public lands, with a number of consequences. The public lands draw the seasonal populations but limit development potential. Differences in agency and management of the lands have an impact on the relative contribution of seasonal populations to the local government. Impacts range from a housing crisis (Skagway) to the development of an alternative economy (Quartzsite).
- **Desire to develop a year-round economy.** A common development objective was to broaden the year-round economic activity, and lessen the seasonal swings. Increasing the range of locally available health services is considered an important factor in attaining this goal.

## **Impact of seasonal populations on health service infrastructure**

In all three cases, the seasonal population was considered to be similar to the permanent population in ethnic, sociodemographic, and health characteristics. The increase in population during high season represented increased demands on the health care system, but was characterized simply as “more of the same.”

**Emergency services.** The greatest impact of seasonal populations is on emergency services and related infrastructure. The high-risk activities of the seasonal population test the local capacity for emergency response; this benefits the locals who likewise participate in high-risk activities. All three communities had well-established emergency response systems and medical evaluation plans. However, capacity could be quickly overwhelmed, and unsafe travel conditions resulting from bad weather could jeopardize these plans.

**Need to reduce unnecessary transport.** All three communities wish to increase the capacity to treat accidents and emergencies locally. The ability to treat less serious injuries locally would reduce the need for costly transport, both in terms of money and in volunteer time. Improved diagnostic capabilities would also reduce unnecessary transport. Transportation times could be lengthy and involve multiple transfers. And, these services could be quickly overwhelmed in the case of multiple casualties. They were further subject to frequent limitations imposed by weather conditions that can make both road and air travel unsafe. Further, the high costs of air evacuation (up to \$20,000 per flight) accrue to individuals, health systems, and insurance companies. For the uninsured individual, the cost of a single accident was catastrophic.

**Managing seasonal variations in supply and demand.** One community-based strategy to assist residents in obtaining healthcare was to offer alternative work schedules (e.g. a four-day work week) to accommodate the need to travel long distances. Strategies employed by health service providers to manage seasonal fluctuations included:

- Scheduling staff vacations in the off-season
- Granting extended leave to some staff in the off-season, effectively creating a seasonal schedule while maintaining permanent employment
- Contracting with and providing office space for visiting providers
- Encouraging year-round residents to schedule routine care during the off-season
- Offering alternative work schedules to accommodate the need to travel long distances
- Hiring seasonal employees
- Increasing the use of volunteers in peak season
- Contracting with locum tenens providers

Although the locum tenens system was designed in part with rural communities and temporary needs in mind, it was the least preferred solution to a perennial problem. Locum tenens providers were viewed as very expensive, providing housing as part of the contract was difficult, and quality of care was uncertain.

The potential for reciprocity between “summer” and “winter” communities was unexplored. The possibility may exist for “winter” communities to partner with “summer” communities to share healthcare resources. Some private providers already have seasonal practices. Small frontier

communities often lack the economic base to support private providers and must rely on public initiatives.

Because of their proximity to international borders, residents of two communities – Skagway and Quartzsite – often relied on an “international safety net” for access to affordable services. The loss of access to Canadian physicians for Skagway residents represented a dramatic policy barrier to geographically accessible health services.

Because this study employed a case study approach, these findings cannot be generalized. The three communities showed a wide range of demographic, economic, and sociocultural conditions. Differences in state and local government further conditioned the range of policy responses available at the local level.

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## **APPENDIX A: CONTACT LIST**

**NOTE: Not all contacts were interviewed.**

### **SKAGWAY, AK**

Jeanine R. Masciola  
Skagway Chamber of Commerce

Michael Catsi  
Executive Director, Skagway Development Corporation

Glenette Christian  
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Town of Quartzsite

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Candy Beebe  
Hinsdale County Department of Public Health

Erin Cavit  
Lake Fork Health Service District

Jerry Gray  
EMS/EM Director

Alena Haskell  
Lake City/Hinsdale County Chamber of Commerce

**OTHER**

Art Blank  
President & CEO  
Mount Desert Island Hospital  
Bar Harbor, ME

## **APPENDIX B: QUESTION GUIDE**

### **IMPACT OF SEASONAL POPULATION VARIATIONS ON FRONTIER COMMUNITIES:**

#### **MAINTENANCE OF THE HEALTHCARE INFRASTRUCTURE July 2005**

The Frontier Education Center is conducting research on frontier communities with large seasonal population variations. Three case studies have been selected in Alaska, Arizona, and Colorado. The study builds on the results from a 2003 survey of State Offices of Rural Health and seeks to understand how large seasonal variations in population affect the provision of healthcare and related public services in small, isolated frontier communities.

#### **CASE STUDY QUESTION GUIDE**

##### **Question 1: How is the healthcare infrastructure managed to accommodate variations in need resulting from seasonal/event-related population fluctuations?**

1. Do you bring in additional staff to meet the needs of the seasonal populations? What types of providers, and in what types of facilities? How are seasonal providers recruited, paid, housed? What issues do you face recruiting seasonal staff?
  - a. Do you use locum tenens physicians/providers to meet seasonal needs?
  - b. Do you have permanent, seasonal/part-year providers?
  - c. Do you have staff that switch between part-time and full-time? Or work overtime during peak season?
  - d. Volunteers?
2. Are there seasonal differences in patient census? How is coverage for peak season estimated?
3. Are there differences in healthcare needs between the permanent local population and the seasonal population? (Different age groups, ethnic/cultural differences, income, insurance status, different illness/injury profiles?). Does this affect the planning and provision of services?
4. Are there separate facilities for seasonal providers / populations? How are these financed?
5. What are impacts of seasonal populations on emergency transport and emergency care services?
6. What are the impacts of seasonal populations on local volunteer-staffed health and human services?

**Question 2: How does managing the infrastructure for seasonal populations affect the care of the permanent local population?**

7. Do seasonal populations compete with permanent residents for available services? Or does their presence ensure more/better health services? Or do seasonal residents/visitors go elsewhere for healthcare?
8. Do seasonal populations place financial strains on the local infrastructure? Or do they enhance it? Are there any special taxes or financial tools related to seasonal populations to pay for extra services?
9. If there are differences in insurance coverage or other strategies for covering the cost of care, does this affect access to care for either the permanent local population or the seasonal population? (e.g. providers willingness to treat uninsured, Medicare/Medicaid patients?)
10. Are there differences in expectations of service or quality? How do staff accommodate these differences?
11. What is the impact of seasonal populations on health services in other nearby communities? (Is there overflow?)
12. Is there anything else important that we haven't asked?

## APPENDIX C: DEFINITIONS FOR COUNTY TYPES FROM TABLE 1

**Urban influence codes (1-12):** {Economic Research Service, 2004 #141 }

4 - Noncore adjacent to large metro area, does not have a city of at least 10,000 residents.

10 - Noncore adjacent to micro with no own town of (2,500-9,999 residents).

12 - Noncore not adjacent to metro or micro, with no own town (2,500-9,999 residents).

Full list next page.

**Economic Dependence Definitions:** {Economic Research Service, 2004 #140}; mutually exclusive definitions

Farming-dependent – not applicable

Mining-dependent – not applicable

Manufacturing-dependent – not applicable

[Federal/State government-dependent](#) (381 total, 222 nonmetro) counties—15 percent or more of average annual labor and proprietors' earnings derived from Federal and State government during 1998-2000.

[Services-dependent](#) (340 total, 114 nonmetro) counties—45 percent or more of average annual labor and proprietors' earnings derived from services (SIC categories of retail trade; finance, insurance, and real estate; and services) during 1998-2000.

[Nonspecialized](#) (948 total, 615 nonmetro) counties—did not meet the dependence threshold for any one of the above industries.

**Policy Type Definitions:** {Economic Research Service, 2004 #140}; not mutually exclusive, can overlap

[Housing stress](#) (537 total, 302 nonmetro) counties—30 percent or more of households had one or more of these housing conditions in 2000: lacked complete plumbing, lacked complete kitchen, paid 30 percent or more of income for owner costs or rent, or had more than 1 person per room.

[Low-education](#) (622 total, 499 nonmetro) counties—25 percent or more of residents 25-64 years old had neither a high school diploma nor GED in 2000.

[Low-employment](#) (460 total, 396 nonmetro) counties—less than 65 percent of residents 21-64 years old were employed in 2000.

[Persistent poverty](#) (386 total, 340 nonmetro) counties—20 percent or more of residents were poor as measured by each of the last 4 censuses, 1970, 1980, 1990, and 2000.

[Population loss](#) (601 total, 532 nonmetro) counties—number of residents declined both between the 1980 and 1990 censuses and between the 1990 and 2000 censuses.

[Nonmetro recreation](#) (334 designated nonmetro in either 1993 or 2003, 34 were designated metro in 2003) counties—classified using a combination of factors, including share of employment or share of earnings in recreation-related industries in 1999, share of seasonal or occasional use housing units in 2000, and per capita receipts from motels and hotels in 1997.

[Retirement destination](#) (440 total, 277 nonmetro) counties—number of residents 60 and older grew by 15 percent or more between 1990 and 2000 due to immigration.

**1989 County Typology – this category not included in the 2004 revision**

[Federal lands counties](#) (270) had land areas dominated by Federal ownership. Seventy-six percent of these counties are in western States. Counties in this type had larger land areas and were more sparsely populated than all-nonmetro counties. On average, population in these counties grew faster during the 1980's than in all-nonmetro counties. Nearly 70 percent of jobs in the average Federal lands county were in the services or government sectors, reflecting the recreational use and land management functions of the group. Strong growth in service sector jobs during the 1980's probably contributed to higher family income (over \$1,900 higher) than in all-nonmetro counties. {Economic Research Service, 1994 #142}

## USDA/ERS Urban Influence Codes, 2003

Code	Description	Number of counties	2000 Population	Square miles	Population per sq. mile
<b>Metropolitan counties:</b>					
1	In large metro area of 1+ million residents	413	149,224,067	267,423	558.0
2	In small metro area of less than 1 million residents	676	83,355,873	629,671	132.4
<b>Nonmetropolitan counties:</b>					
3	Micropolitan adjacent to large metro	92	5,147,233	94,178	54.7
4	Noncore adjacent to large metro	123	2,364,159	88,229	26.8
5	Micropolitan adjacent to small metro	301	14,668,144	285,527	51.4
6	Noncore adjacent to small metro with own town	358	7,855,590	334,361	23.5
7	Noncore adjacent to small metro no own town	185	1,879,264	336,499	5.6
8	Micropolitan not adjacent to a metro area	282	9,139,821	338,256	27.0
9	Noncore adjacent to micro with own town	201	3,227,833	193,200	16.7
10	Noncore adjacent to micro with no own town	198	1,313,175	196,269	6.7
11	Noncore not adjacent to metro or micro with own town	138	2,247,189	488,521	4.6
12	Noncore not adjacent to metro or micro with no own town	174	999,558	285,304	3.5
	Total	3,141	281,421,906	3,537,438	79.6

Source: USDA Economic Research Service, "Measuring Rurality: Urban Influence Codes," Available <http://www.ers.usda.gov/Briefing/Rurality/UrbanInf/2003>  
 {Economic Research Service, 2004 #141}