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**FUNCTIONS AND BENEFITS OF
RURAL AIRPORTS IN WASHINGTON**

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**Research Report
February 2002**



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Research Project T1804, Task 11

**FUNCTIONS AND BENEFITS OF RURAL AIRPORTS IN
WASHINGTON**

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EXECUTIVE SUMMARY

"As long as we remain remote, we remain suppressed as far as our potential."
Co-chair, Okanogan Area Alliance 2005 Committee

"Our airport was invisible until I needed it."
Neo-natal Emergency Medical Airlift Patient

"Time is tissue."
Cardiologist, Angel Flight Volunteer

*"The rotating beacon at the airport is a sign of security
and the airport makes Goldendale more attractive."*
Goldendale Social Worker

BACKGROUND

Washington's urban and rural communities are served by an airport system that provides mobility to Washington's citizens, visitors and other traveling public. The strong performance by Washington's airports has been integral in the development and sustaining of Washington State's role in international trade for the nation. The economic benefits of major airports are well known and acknowledged; less well known is the benefit to the state and rural communities provided by rural airports.

The robust economic growth of the past ten years has not been experienced by all parts of the state's economy or people. Rural counties and cities, historically dependent on resource extractive industries such as forestry, mining, agriculture, and in some cases fishing have witnessed lower income levels and increased unemployment. A decline in resource extractive industries has direct consequences on the survival and preservation of the state's airport system and its attendant facilities. If the major airports are the arteries

of the economic system, rural airports are the veins and capillaries necessary for a healthy and productive economic system.

The rural airport systems, and its users, are caught on the horns of a dilemma. The need for local airport services is never more critical but the vitality of the rural Washington airport system, and the capability to support that system, doesn't mirror the past vigor of the state economy. An understanding of the role played, functions performed and benefits (mobility, access, etc.) generated by the system of rural airports is a critical element as local decision makers, faced with competing demands, make choices about investment and support for the rural airports.

OBJECTIVES

This report identifies the wide range of benefits that rural communities receive because they have an airport. Objectives include:

- Describe the economic environment within which rural communities are operating.
- Understand why flights are made to understand how the community is served by aviation related and other activities, which use rural airports.
- Identify the benefits communities receive and how integrated rural airports are into the fabric of the community.
- Investigate strategies for decision makers concerned about the vitality of rural airports.
- Identify several emerging technologies or trends that may impact the role of airports in the future.

STUDY METHODOLOGY

-Qualitative Research-

The primary data sources for this study are individuals, located in one or more of the communities, who live in, work in or have knowledge about or use the airport. The data collected from the intensive interview and focus group process has been augmented with a review of applicable literature, written responses provided by individuals in the case study communities and whatever pertinent information could be found.

The validity of this approach has been documented in the qualitative research literature. The essence of qualitative research involves ethnography, essentially a cultural perspective. A combination of that tenet with a case study setting allows the researchers to expect differences (all benefits aren't applicable to all airports) but look for commonalities or diversity and the reasons for it. The dynamic nature and design flexibility of qualitative research allows appropriate units of analysis to be determined as the study proceeds because qualitative inquiry designs need not and cannot be completely specified in advance of field work. Creativity and flexibility in the fieldwork relies on observation, interviews, categorization and documentation.

-Case studies-

The case study rural communities were Forks, located in the Northwest corner of Washington, the Omak area in Okanogan County in North Central Washington and the Goldendale/Dallesport area in Klickitat County which borders the Columbia River and Oregon in South Central Washington. The focus of the study was on the benefits that

communities derive from rural airports and was not about identifying the specific benefits of each individual airport. By design, and with the agreement of the Aviation Division of WSDOT, questions were of such a nature as to preclude using the information to discriminate, compare or contrast one airport from another.

Phone and personal interviews were made with initial community contacts, allowing a list of potential interviewees to be developed. Focus groups, individual interviews and monitoring of city and county meetings provided data. Not one person or group declined to participate in the study.

EMERGING THEMES OF AIRPORT ACTIVITIES

Economic Development and Airports – The Box That Must Be Checked

The role of airports in economic development and improving the economic development is pronounced. The majority of firms seeking to relocate or build a new facility will eliminate a community without an airport. This may happen even before the community has a chance to sell the other attributes of their community. Airports are also the focus of economic development activities in rural communities.

Health Care – Emergency Service

Emergency medical air transport came up early and often. For many trauma, cardiac, neonatal and respiratory patients, time is critical (“Time is tissue!”). All the hospitals were Trauma Level IV facilities that require transportation of patients to Level I and II hospitals, of which there are only seven in the state. Aircraft bring to rural hospitals prosthesis, surgeons and dentists, blood, tissue, etc., usually in a time sensitive

but also convenience situation. This access allows local hospitals and doctors to economically survive. MedStar, Airlift Northwest, Angel Flight and other service agencies rely on the airports. The importance of having an airport for quality health care is much like having the airport box checked for economic development. Without an airport, the technology and highly trained medical professionals available at the handful of medical centers located in urban centers are not readily available to rural residents.

Business and Commerce

With the increasing specialization of American business and life, access to the expertise and markets found in urban areas takes on an increasing importance to rural communities, far more than was initially expected. Rural airports were found to provide a wide range of support for local businesses including agriculture and forest products businesses. Use ranged from delivery of time sensitive replacement parts, regular movement of personnel between headquarters and branch locations, and transportation for out-of-area expertise (engineers, lawyers, etc.) to the rural communities. Further, Federal Express and UPS operations, aircraft maintenance and part fabrication, fuel concessions, air taxi/charter operators, experimental plane parts and kit manufacturing, general aviation aircraft, Fixed Base Operations, cattle buyers/lawyers/ranchers/apartment owners/real estate appraisers, etc. also occur.

Public Safety, Disaster and Emergency Response

Rural airports are used to support many activities of fire fighting operations, police agencies and natural disaster response. Red Cross relief flights, search and rescue,

water/retardant drops, Type I tanker lead aircraft/SEAT/Mosquito Fleet operations all operate out of local facilities. Rural airports have also been used in times of floods, earthquakes, ice storms and other natural disasters. Further, it is the fact that the airport will be there if and when it is needed as alternatives to other transportation. The importance to the residents of communities of the use of their airports during disaster or emergency, while difficult to quantify, is a "hidden" asset that might not be noticed by the community until it is critically needed.

Enriching Community Life

Flights from rural airports touch almost every sector in life in the local communities. Taken individually, each activity may seem inconsequential but viewed as a whole; the airport does enhance the quality of life. Activities include among others: flying to family reunions, bringing children to divorced parents, showing a prospective pastor or physician over the area, shopping, bringing potential buyers into the area. The airport can serve as the "portal" to public policy activities, allowing access to Congress, state government and legislatures, while allowing local visits and meetings with those representatives. They also host many community events, not just fly ins, but summer community festivals, car races, Scout jamborees, etc. Supporters of airports, pilots groups, and JC's, serve as private citizen "associations" that help build, maintain and strengthen American communities by supporting local airport and other community events. Model plane clubs, recreational flying, connectedness versus isolation feelings, access to wind surfing, vacation houses, hunting and fishing, all enrich the community.

While difficult to quantify, the overarching benefit of rural airports to their communities is that the quality of life is enhanced.

Benefits are complementary to each other

Benefits derived from one usage of the Airport can, when added to another usage, result in a broad menu of attributes available from the facility. The benefits to the community are derived, not from the flights themselves, but from the purpose of the flights. Very few individuals take a scheduled airline flight simply for the joy of flying, as is sometimes the case with a general aviation aircraft. The airline flight is a means to some other end – the need to be at a business meeting, a desire to visit a vacation location, the need to attend a funeral, the crisis of a fire, etc. The same conclusions are not readily drawn for general aviation flights. Interviewees readily identified the reasons flights were made, resulting in a list in this report of over 130 flight purposes, purposes that reach throughout the community and generate the benefits rural airports bring to their communities.

The benefits to rural communities include the following: 1) Enhanced quality of life; 2) Access to needed professional services; 3) Improved quality of healthcare; 4) Effective and timely response to disasters, emergencies and fires; 5) Support for local businesses including agriculture and timber businesses; 6) Improved ability to petition government; 7) Community life enriched; 8) Critical asset for economic development; and 9) An improved sense of well-being.

FINAL PERCEPTIONS

It is evident that individual benefits are often below the radar screen of individual citizens or decision makers. Most flights are undocumented except in the logbooks of pilots. However, when these numerous benefits are combined, the critical mass of total benefits that emerges will generate support for rural airports.

The use of qualitative research analysis worked extremely well in this study. Personal observations and knowledge of rural community residents were strategically combined into themes and strategies.

Airports are often a sign of hope for communities fighting for survival or development. Loss of the airport and its varied multiple benefits can diminish the image these communities have of themselves.

Rural airports are fully integrated into the life of their community. Citizens are touched in many ways not always evident, but always effective.

For those policy makers and citizens concerned about the future of rural communities, the future of rural airports must be given attention. The result of this study supports their role as an essential public facility.

To some degree, the emerging themes derived from the flight purposes can be expected at most rural airports in Washington. The benefit framework developed in this study is appropriate for use by decision makers as they evaluate investments in their airports.

The general aviation community has a critical role to play in the investment debate. They can serve as an action agent by drawing attention to these benefits,

reaching past recreational flying, and positively positioning these airports in the community infrastructure investment decisions.

DETERMINING INFRASTRUCTURE NEEDS FOR RURAL MOBILITY: FUNCTIONS AND BENEFITS OF RURAL AIRPORTS IN WASHINGTON

INTRODUCTION

Washington's urban and rural communities are served by a system of airports that is comprised of primary, commercial service, reliever, and general aviation airports. Airports, through the attendant aircraft that use them, provide mobility to Washington's citizens, visitors, and other traveling public. In addition to the business community, the aviation system supports the health care, defense, emergency, disaster, public safety and other governmental services of the state and nation. The strong performance by Washington airports has been integral in the development and sustaining of Washington state's role in international trade for the nation.

The benefits of Washington's existing system of airports are well known and acknowledged although conventional wisdom often identifies many of the benefits of the system to the primary, commercial service, reliever and urban general aviation airports. Less well known is the benefit to the state and to rural communities provided by rural airports. Of the 129 public access airports in Washington State, most are quite small and are based in rural and often remote locations.

The traditional methodology used in identifying the contributions of airports to the state's economy which focuses on economic benefit analysis misses many of the benefits rural airports bring to their communities. These benefits are often of an intangible nature and not readily apparent. Rural airports might seem invisible unless an individual has had a direct experience in their use. The benefits of rural airports reach

past direct, indirect or induced benefits into the very social fabric of the community or region. While the net benefit to the state from the rural airports maybe less than their urban counterparts, their role and benefit to the rural communities they serve is of no less importance to those communities.

The robust economic growth of the past ten years has not been experienced by all parts of the state's economy or peoples. Rural counties and cities, historically dependent on resource extractive industries such as forestry, mining, agriculture, and in some cases fishing have witnessed lower income levels and increased unemployment. This decline in rural economic activity has direct consequences on the survival and preservation of the state's airport system and its attendant facilities. If the major airports are the arteries of the economic system, rural airports are the veins and capillaries necessary for a healthy and productive economic system.

The rural airport system, and its users, is caught on the horns of a dilemma--the need for local airport services is never more critical but the vitality of the rural Washington airport system doesn't mirror the vigor of the state economy. Hence, the diminished prosperity in rural Washington coupled with the lack of understanding about the benefits rural airports bring to their communities is threatening the support and viability of many airports.

Law has classified the airports included in this study as "essential public facilities". The question for many is why are they essential? What level of facility and infrastructure is needed? Answering such questions will allow balanced judging of the merits of preserving Washington's rural airports whose survival is threatened, providing

infrastructure for rural mobility, and devising and implementing sound and effective strategies to mitigate the problem of potential demise.

The issue of the survival and preservation of Washington's airport system surfaces as a rural economic problem. An understanding of the role-played, functions performed and benefits (mobility, access, etc.) generated by the system of rural airports is a critical element in solving this economic problem. Federal, state, and local decision makers, as they necessarily make hard allocation or zoning decisions in times of diminished budgets, needs full information on all alternative projects or expenditures. Understanding the benefits and needs of rural airports is the first step in informed decision making.

This report identifies the wide range of benefits that rural communities receive because they have an airport. The answers found in this report are developed from several sources but primarily from a close look at three case study areas in Washington State, the communities surrounding Omak in North Central Washington, the Goldendale – Dallesport area of Klickitat County in South Central Washington, and Forks in the far Northwestern corner of Washington State.

The information presented in this report is primarily drawn from the experience and knowledge of individuals in these communities. Included are members of civic organizations, business owners - both aviation and non-aviation related, pilots, elected officials, economic development professionals, planning professionals, hospital administrators, social workers, other health service professionals, EMS professionals, airport managers, and fire fighting professionals.

OBJECTIVES

The first objective of the report is to describe the economic environment within which rural communities are operating. This is important, as it is impossible to understand the benefits that rural communities draw from their airports without understanding the context in which those communities find themselves. The second objective is to improve the understanding about why flights are made and how the community is served by aviation related and other activities, which use rural airports. This is critical since most of the benefits to the community are derived from those activities. The third objective is to identify the benefits communities receive from having an airport and how integrated rural airports are into the fabric of the community. The fourth objective is to investigate strategies for decision makers and individuals concerned about the vitality of rural airports that are drawn from the insights into how decisions are made in the case study communities. The final objective is to identify several of the emerging technologies or trends, which were offered by case study community residents, that may impact the role of rural airports in the future. This final objective is important because we do not live in static times. Decision makers and citizens will need to stay abreast of the many changes will have direct impact on the role their airports will play in the life of their communities.

METHODOLOGY

Qualitative Systems: The primary data sources for this study are individuals who live in, work in, or have knowledge about or use the airport located in one or more of the communities. The data collected from the interview and focus group process has been

augmented with a review of applicable literature, written responses provided by individuals in the case study communities, and where ever pertinent information could be found. For example, an indication of the uses for the Omak Airport was gleaned from the visitor registry in the Omak Airport pilots lounge. The themes presented in this report are those, which became apparent in reviewing the first hand experience and knowledge that was expressed by the interviewees living in the case study communities. Individuals outside the community augmented the local interview data with experience using rural airports, as well as the other information sources sited above.

The validity of this approach has been documented in the qualitative research literature. The essence of qualitative research involves ethnography, essentially a cultural perspective. Ethnography is based on the theme that in every human group that is together for a period of time a culture will evolve. A combination of this tenet with a case study setting allows the researcher to expect differences (all benefits aren't applicable to all airports) but look for commonalties or diversity and the reasons for it. Using the strategic investigative framework (a specified objective of this study) gives a framework for research action and a basic direction of inquiry, allowing determination of patterns while allowing category systems to be developed. Specific qualitative approaches are to either 1) interview interested or potentially interested parties associated with rural airports or public investments or 2) sit in, interview, and/or observe the local groups that make resource decisions about the airport or groups who were willing to meet to discuss the airport. The dynamic nature and design flexibility of qualitative research allows appropriate units of analysis to be determined as the study proceeds because qualitative inquiry designs cannot be completely specified in advance of fieldwork.

Creativity and flexibility in the fieldwork relies on observation, interviews, categorization and documentation.

The traditional research approach, logical positivism, uses quantitative and experimental methods to test hypothetical-deductive generalizations. Phenomenological inquiries, on the other hand, use a qualitative and naturalistic approach to inductively and holistically understand human experience in the context of specific settings. The theory, i.e. "themes" in the case of this study, are derived from the data collected as opposed to setting out an hypothesis and then testing it with the available data.

Patton has developed an alternative and appealing approach, referred to simply as "pragmatism", with methodological appropriateness as the primary criterion for judging methodological quality. This was the thesis underlying the qualitative approach chosen for this study, understanding the quantitative but reaching past to the non-quantifiable but useful. The holistic perspective, part of pragmatism, allows the airport system, or individual airports, benefits to be greater than the sum of its parts. The inductive component allows an individual person or community or subsets of communities to be used. Individual experiences serve to evaluate mobility (time savings), accessibility (connectivity for business, services and retail finances), and accident cost savings in a broad context, maybe an abstract as simply "quality of life". These experiences are not just individual but are multi-layered social dynamics of "community": passengers, freight, citizens, private sector, local government, social agencies, economic development agencies, etc. (1)

Approach: The Omak area in Okanogan County in North Central Washington, Forks located in the Northwest corner of Washington, and the Goldendale/Dallesport area

in Klickitat County, which borders the Columbia River and Oregon in South Central Washington, were chosen as case study communities. It was the experience of these rural communities with their rural airports that would allow the research team to develop the list of benefits brought to rural communities by the presence of an airport. That experience was captured by a set of interviews with individuals living and working in these communities.

The initial study design had been to focus on a single airport in each community. The study team found that, when discussing the local airport, the term airport would trigger responses about one or more of the specific airports in the area. Local citizens were openly interested in seeing that all of the airports in their area were included in the study. It was decided very early in the study process to include the users, decision makers, and citizens for the multiple airports in each case study area. In the end this strengthened the conclusions of the study.

The focus of the study is on the benefits that communities derive from rural airports and is not about identifying the specific benefits of each individual airport in the study areas. For example, individuals offering information for the study were associated with 4 of the 7 public airports in Okanogan County, two airports in Klickitat County and again two in the Forks area. Each participant provided important insights to the benefits that rural airports offer to their communities. In very few instances were the activities associated with one airport either not available at the other airports or could possibly happen at those airports in the future. By design and with the agreement of the Aviation Division of WSDOT, questions were of such a nature that to use the information in this study to try and discriminate, compare or contrast one airport against another is not

possible because the data were not collected in a manner that would allow legitimate conclusions to be drawn.

One or more contacts were made initially in each community to assist the research team in gaining access to the many individuals in the community. In Forks it was Kathy Cunningham, City of Forks Director of Economic Development. In The Dallesport/Goldendale area it was Dana Peck, Klickitat County Economic Development Director and Susan Kerr, Chair of the Klickitat County office of Washington State University Cooperative Extension. In the Omak/Okanogan area there were two individuals, Lael Duncan, Co-Chair of the Alliance 2005 economic development committee and Jay Jenkins, Chair, Okanogan County Washington State University Cooperative Extension.

Phone and personal interviews were made with the community contacts. Then in cooperation with those contacts, a list of potential interviewees was developed. The initial list was expanded using information presented on community, Chamber of Commerce, City, or County Web pages. A research team member contacted each of the interviewees by phone to schedule a time to meet. An early indication of how the case study communities viewed their airports was that the research team had no trouble securing the willingness of community residents to participate in this study, even though most calls were made without prior introduction to either the study or the study team. There was not a single declination to participate and persons interviewed often would identify others in the community that they felt should also be part of this study. In the end, the list was longer than the available time to interview persons for the study. Additionally, members of the research team sat in and observed the Omak City Council

meeting, an airport master plan hearing in Forks, and conducted a short survey as part of an Okanogan Area Alliance 2005 Board of Directors meeting.

Interviewees represented a broad cross section of the community. There were members of a community citizen's organization, business owners, a number of pilots, a local newspaper editor, and an area economic development committee whose membership was over 50 percent from the private sector. There were Mayors, City Council Members, County Commissioners, city and county planners, city and county economic development personnel, paid and volunteer airport managers, a Community College President, hospital administrators and financial officers, a social worker and the head of a community counseling program. Additional interviews were conducted with an aviation EMS pilot and an aviation EMS program administrator, a retired cardiologist active in the Angel Flight organization, U.S. Forest Service personnel, Colville Federated Tribe Economic Development and fire fighting personnel, and a helicopter news crew. Finally, individuals involved in businesses located on the airports were interviewed.

Most of the study participants were interviewed in individual settings - an office, conference room, pilot's lounge, classroom, hanger, or workshop. Pilots in Omak, Goldendale, and Dallesport were asked to meet in a focus group setting and a "group interview" activity was used with the Okanogan Area Alliance 2005 Committee.

Interviews ran from 30 minutes to 2 hours in length.

RURAL COMMUNITIES – THE CONTEXT

The Washington economy, through most of the 1980s, experienced a period of restructuring and dislocation, which saw Washington lose ground as a high wage state. Washington's natural resource dependent areas suffered severe losses of high paying jobs and family income in the 1980's. The economy of the case study communities each were heavily dependent on some combination of forestry, agriculture, or fishing, all of which have experienced significant declines in economic activity since the early 1980's. During the late 1980s to the present, the Washington economy regained some lost ground, except in many of the rural counties. Although the Washington economy out-performed the nation's from the post 1980's to present, the state and national recoveries have not been experienced by most rural counties in Washington State (2).

Income and wage data make this point. For example, during the 1970's, all three of the case study areas had per capita income that grew at a far faster rate than either the state or nation but in the 1980's, per capita income either declined or was flat in the case study communities (3). The per capita income growth rates of most rural Washington Counties, including the three case study communities, grew during the 1990's but at rates that again trailed both the state and national average growth rates. While average wages throughout the state have increased in the past several years, in most rural areas, including in each of our study areas, they are still lower today in real (inflation-adjusted) terms than in 1980. Rural Washington not only lost significant ground during the 1980's it has not kept up in the 1990's. The hopes for the future of Washington's economy, a solid base of high technology and telecommunications industries and the capacity to take

advantage of expanding world trade, seem very distant to the citizens in the three case study areas and, in general, to rural areas.

The consolidation, concentration, and domination of the retail sector by large retail chains, the loss of businesses in rural communities, the continuing restructuring in agriculture to fewer but larger farms and agribusinesses serving agriculture, the mergers and consolidation in the banking and financial area, and the concentration of medical specialists and new medical technologies in urban centers are the reality of today's economic environment. These changes create additional challenges for rural communities as they seek to create an economic future. The following discussion focuses on the health care system, but only as a proxy and example of how the concentration of professional and financial resources creates challenges for rural communities.

AN EXAMPLE: RURAL COMMUNITIES AND HEALTH CARE

Rural health care systems have lagged behind their urban counterparts all through the 20th century. There have been several federal initiatives since the 1930's to increase the level of health care service in rural areas primarily focused on increasing the number of physicians located in rural communities (4). The level of care possible in a rural hospital was not so significantly different than many urban hospitals. The lack of medical personnel was the challenge for rural communities. The latest medical technology of the day during the 50's and 60's for the most part could be found in both rural and urban medical facilities.

The same cannot be said today. In recent years, there has been a concentration of medical technology and specialists in urban areas due to a number of factors, not the least

of which is the higher income and population levels that characterize urban centers as compared to rural communities. In short, urban and suburban areas are more able to support the latest technology that specialists need as well as the specialists themselves.

The high cost of new medical technology, the demand for medical specialization, and the need for a patient base to pay for these factors have concentrated high level medical treatment facilities in or near urban centers. These factors, coupled with the difficulty that rural hospitals have in recruiting and keeping personnel, have created a situation in which rural hospitals, while providing an excellent level of care within the framework of their equipment and the training of their personnel, must send many patients on to urban hospitals or when possible bring that specialized knowledge to bear on the issue at hand by bringing the specialist to the rural area physically or virtually using video-conferencing and other digital communication technologies.

The acute care rating system for hospitals symbolizes the concentration of specialists and technology that has evolved in the health care system. The Trauma Level I through Level V rating given hospitals recognizes the level of acute care that is available at the hospital. The Trauma Level is based on a range of factors including personnel, equipment, facilities, and supporting systems. Patients needing specialized care need access to the services provided at Level I or II facilities and usually are transported from Level III, IV, and V hospitals in rural or small urban areas to Trauma Level I or II facilities, of which there are only seven in the state. (5)

Level I hospitals provide the highest level of definitive and comprehensive care for patients with complex injuries. Trauma Level I facilities handle the most acute of head injuries, burns, and illnesses requiring the highest level of treatment and medical

technology. There is one Level I hospital in Washington State, Harborview Medical Center in Seattle. There is an additional Level I facility in Portland Oregon which serves South Central and Southwest Washington.

Level II hospitals provide definitive care for complex and severe trauma patients. A broad range of specialists, comprehensive diagnostic capabilities, and support equipment are available. There are 6 Level II medical facilities in Washington State and one in Lewiston Idaho that serves Southeastern Washington. Level II facilities are located in Vancouver, Bellingham, Spokane, Tacoma, Wenatchee, and Walla Walla.

Level III hospitals provide initial evaluation and stabilization (surgically if appropriate) to the trauma patient. Comprehensive medical and surgical inpatient services are available to those patients who can be maintained in a stable or improving condition without specialized care. Level III facilities assess, resuscitate, stabilize and initiate transfer as necessary to a higher-level Trauma Care Service. There are 20 Level III facilities in Washington.

Level IV hospitals provide initial evaluation, stabilization, diagnostic capabilities and transfer to a higher level of care. Level IV facilities may provide surgical and critical care services as defined in the service's scope of trauma care. All of the hospitals in the case study areas are Level IV facilities.

Level V facilities provide initial evaluation, stabilization and transfer to a higher level of care. The facility may be a rural hospital or medical clinic. Trauma-trained physicians, physician assistants, or nurse practitioners are available within 20 minutes.

Tremendous improvements in medical care have been achieved with the application of the latest research, specialization, and improved but costly technology.

One example of the strides that have been made through the improvements in our medical system is the fact that twenty years ago, the mortality rate for heart attack patients was higher than 20 percent, rural or urban. The potential treatment did not differ much between rural or urban patients. Today that survival rate is around 5 percent. One of the keys to the improvement in survival rates is the application of latest treatments in a rapid manner - patients are quickly stabilized and moved to a medical center with the appropriate specialists and equipment - specialists and equipment found primarily in urban centers. As one cardiologist said, "Time is tissue" meaning the sooner treatment can be provided, the less damage to the heart. An important quality of life issue for rural residents becomes access to those treatment possibilities.

This discussion has focused on the health care system but the health care system is not the only area of modern life characterized by the phenomena of ever increasing specialization, which is concentrated in urban centers. While the Trauma Level rating system formerly recognizes this concentration of specialization in the medical arena, most other professions have a less formal, but no less concentrated level of professional specialties around and in urban centers where the population base and economic activity levels can support those professions.

The construction and environmental engineers, digital communication technologists, specialized lawyers, communications systems specialists, financial specialists, waste water specialists, etc. for the most part live and work in or near urban centers. The concentration of services is also prevalent in banking, investments, retail, and wholesale distribution systems and increasingly in state and federal government. Often it is not necessary that these services be physically located in rural communities,

but access to these centers of “specialization”, as well as government, financial, and distribution centers is necessary for rural communities if they are to develop an economic base that will provide a future for their communities.

Many of Washington’s rural communities have dreams of a brighter future and increasingly understand the implications for their communities if the trend of the past 20 years is not reversed. The communities of Forks, Omak / Okanogan County, and Goldendale / Klickitat County are all actively pursuing strategies to improve their future chances of economic success for their residents. Access to urban financial, professional, medical, and distribution centers plays key roles in each community’s efforts.

CASE STUDY COMMUNITIES

The Omak area in Okanogan County in North Central Washington, Forks located on the Northwest corner of Washington, and the Goldendale/Dallesport area in Klickitat County, which borders the Columbia River and Oregon in South Central Washington, served as case study communities. All three of the case study areas, while very different from each other, are known for their beautiful landscapes, abundant natural resources, outdoor recreational opportunities, and low population densities. The economic high point of each area came prior to the 1980’s.

We do not relate the benefits associated with the airports to the characteristics of any particular airport in the study. There was fear expressed repeatedly by interviewees that somehow this study would allow state and federal airport funds to be applied to other airports and not to theirs. That was never the intention of this study and it is not possible

to use the results of this study to make those kinds of decisions. Our findings are not correlated to length, width, availability of weather reporting, IFR approaches, etc. We were searching for, and discovered, the multiple benefits available from these and other rural airports.

The functions were different among airports. In every case, interviewees would identify improvements to their airport that would improve the utility of that particular airport, longer and or wider runways, the addition of a precision instrument approach, an on-field weather reporting system, improved fuel facilities, etc. We do not report these observations. We were able to identify verifiable benefits to communities from the airports, as they presently exist which does not argue that the utility of a particular airport might be increased with certain changes. In the end, almost all of the benefits derived by the communities in this study, if not presently applicable, are potentially available to all communities because of the presence of an airport.

The most critical characteristic of the public access airports in rural areas is that they represent real estate where aircraft landings and takeoffs do not require prior approval to happen. They represent real estate that once lost for the support of flight activities, will be extremely difficult to replace. They are land areas where flight operations can be supported, and over which flight and landing activities are approved to take place in a manner established by regulation and convention. Their physical characteristics and area obstructions are published so that pilots can make decisions of whether they are safe for the particular aircraft in question, given current weather conditions.

Any special provisions about an airport are published so that flight activities can happen in a safe manner regardless of whether an aircraft is from the airport or not. Since all of the airports in the study area are under some sort of public ownership, they can be very readily used as a base of flight operations in response to an emergency, disaster, or some other national defense, public health or safety function. Airports and their benefits are often associated solely with fixed wing aircraft, yet we found that airports extend the utility of helicopters. The pre-approved landing and takeoff rights afforded aircraft at the public access airports is important for rotary winged aircraft which, while able to land at many off airport locations, can land and have their operations supported at any public access airport without worrying about prior approval. Airports also usually provide lower weather minimums for helicopters than dedicated off-airport helipads.

Individuals looking for a more detailed description of each airport in the areas described are referred to the Federal Aviation Administration Airport/Facility Directory, the Washington Pilots Guide available through the Washington State Department of Transportation Aviation Division, or the Airports Division of the Northwest Mountains Division of the Federal Aviation Administration, in Renton, Washington.

Omak area, Okanogan County: North Central Washington's Okanogan Country, located halfway between the metropolitan areas of Seattle and Spokane, encompasses more than 14,000 square miles of pristine, natural beauty. Larger than several states, Okanogan County is bordered on the north by British Columbia, Canada, the Columbia River to the south, the Cascade Mountains to the west, and Ferry County to the east. The Okanogan Valley, which divides the County east from west, is the location of the thousands of acres of apple orchards. Omak is a 5-hour drive to Seattle in the summer,

and over 6 hours in the winter through the Cascade Mountains. It is 3 hours to Spokane and 90 minutes to Wenatchee.

The County covers 5,281 square miles, making it the third largest county in the continental United States. Only 30% of the land within the county is in private ownership due to the amount of state and federal land. The Colville Indian Reservation, located in the southeast corner of the county, occupies approximately 700,000 acres of Okanogan County and is an integral part of the heritage of the county. The Colville Federated Tribes are also an important partner in the economic development activities in the region.

The county has a population of 39,564 people. Okanogan, with a population of 2,415, is the second largest city in the county, and the county seat. Omak, the largest city in the county has a population of 4,495. Omak and Okanogan share a common boundary. Other cities within the county are: Brewster (2,040), Conconully (190), Coulee Dam (885), Elmer City (310), Nespelem (232), Oroville (1,580), Pateros (595), Riverside (285), Tonasket (1,025), Twisp (990), and Winthrop (365). The county has an unincorporated population of 24,157, while the incorporated population is 15,407, with a density of 7.5 persons per square mile. (6)

Agriculture and forestry are the major economic generators for the county and are the foundation for the region. Local, state and federal governments are the next largest employer. Retail trade, services, and manufacturing are a few of the other major employers within the county. Omak, the regional center for services and trade, is experiencing some growth, primarily in the retail sector; with large chain discount retailers moving into the area to capture the regional retail trade as well as to draw

shoppers from Canada. The Methow Valley, lying to the West of Omak and located in the western portion of the county, is a destination for outdoor lovers and enthusiasts and includes hundreds of square miles of cross-country ski trails, snowmobile parks, mountain biking, fishing, camping, hiking, and offers many tourist accommodations and weekend get-a-ways, and a four seasons destination resort. A 4-hour drive from Seattle in the summer, it is over 7 hours in the winter when the North Cascades Highway is closed.

Average per capita income in the county was \$20,068 in 1999 compared to the state average of \$29,783. Unemployment rates over the past ten years have been in the top ten counties in unemployment each year. The unemployment rate at the time of the interviews was in the 9 percent range and, while it had dropped in the past year, this is primarily a statistical phenomenon as the work force is smaller with fewer individuals seeking work.

The Omak region has seen a decline of economic activity of about 80% in the area forest products industry since the 1980's, capped recently with the closing of a large veneer plant near Omak. The dominant agriculture product in the Omak region is apples. This sector of agriculture had done reasonably well until three years ago. Since that time, there has been a dramatic decline in income due to low prices caused by foreign competition in juice markets, over production, and shifting consumer tastes away from the Red Delicious variety, long the staple of the Washington apple industry. Two area packing warehouses have gone out of business in the past year and about 20 percent of the apple acreage has been removed. Estimates on the number of area tree fruit producers who will go out of business within five years runs from 20 percent to 40 percent.

There are seven public access airports in Okanogan County. Omak, the largest, was built in WWII. It has a 4,654 ft runway and a non-precision GPS instrument approach, and is owned and operated by the City of Omak. Federal Express operates out of the Omak airport and has a fuel contract with the city of Omak. The Bureau of Indian Affairs operates 2 Single Engine Air Tankers (SEAT - single engine agricultural aerial applicator aircraft converted to fire suppressant and water bombing) during fire season from the Omak Airport. There are two other general aviation related businesses on the field, an aircraft repair and maintenance shop and a parts fabrication business for Cessna aircraft.

Individuals associated with the Okanogan, Twisp, and Tonasket airports also made significant contributions to the findings of the study through individual interviews or as part of a focus group. The Okanogan Legion Airport runway is 2,500 feet in length, the Twisp Municipal Airport runway is 2,690 ft. long, and the Tonasket Municipal Airport runway is 3,000 ft. in length. All are paved, are owned by their respective Cities, and have volunteer pilot groups that participate actively in their maintenance and upkeep. Additional Okanogan County Airports are the Methow Valley State Airport between Twisp and Winthrop, the Scott Airport at Oroville, a Port of Entry airport, and the Anderson Airport near Brewster.

Goldendale/Dallesport, Klickitat County: Klickitat County lies at the junction where the Columbia River Gorge cuts through the eastern slopes of the Cascade Mountains. Klickitat county is the south central county of the State of Washington, being bounded on the south for the entire distance from east to west by the Columbia River, the division line between the states of Oregon and Washington, to the west by the Cascade

Mountains, on the North by the Yakima Indian Reservation and the Simcoe Mountains, and to the east by Benton County and the dryland cropping area of the Horse Heaven Hills. It encompasses 1,908 square miles (about the same size as the state of Delaware). The county is 84 miles wide and averages 23 miles north to south and has 19,161 residents. (7)

Klickitat County is referred to as the place where "the sunshine meets the rain" since it is a transition zone between the maritime climate of the Pacific Ocean and the arid interior plateau of eastern Washington. The average annual rainfall declines rapidly as one travels West to East in the County. There are dense forests, fed by 40 plus inch annual rainfall in the western part of the county and high desert plateaus with average annual rainfall in the 7 to 9 inch range to the East. The area is one of spectacular scenic beauty. The high snow capped mountains, Mt. Adams to the Northwest and Mt. Hood to the Southwest, often dominate the horizon on a clear day. Klickitat County is one of the gateways to the Columbia River Gorge, one of the scenic wonders of the world.

Goldendale, the county seat, is centrally located in Klickitat County and has a population of 3,760. There are two other incorporated towns in the County, White Salmon, 2,193, and Bingen, 672 both located on the Columbia River in the Western part of the County. The Dalles, Oregon, a city of about 8,500 lies directly across the Columbia River from Dallesport and is one of the retail centers frequented by Klickitat County residents. The City of The Dalles, Oregon also owns and operates the Dallesport Airport, which is in Klickitat County, Washington. Driving distances from Goldendale are 110 miles to Portland, Oregon, 70 miles through the Simcoe Mountains to Yakima, and 32 miles Southwest to The Dalles, Oregon.

The economic base of Klickitat County is agriculture, wood products, tourism, and the production of aluminum. The per capita income in Klickitat County in 1999 was \$19,815 compared to the state average of \$29,783. Klickitat County has experienced a major decline in the forest products industry since the early 1980's, from several thousand jobs to less than 500 presently. In the early 1980's there were a number of mills operating in the county, but presently there are two in the surrounding 5 county areas and one has recently reduced its work force. There are irrigated vineyards and orchards along the Columbia River and the primary agriculture production in the county is cattle and dryland grains, two sectors that were economically hard hit in recent years.

The Klickitat County economy has become highly dependent upon two aluminum smelters in the area. The energy problems of the late winter and spring of 2001 caused a temporary shut down of both facilities. At the time of the interviews in Goldendale, the Klickitat County unemployment rate was in the high 18 percent level and threatened to go to 30 percent if the shut down of the smelters were to be permanent.

There are three public access airports in Klickitat County, one a turf strip located 6 or 7 miles west of Goldendale, and the two airports most often discussed by interviewees for this study, the Goldendale Airport and The Columbia Gorge Regional Airport (The Dalles Municipal) at Dallesport. The Goldendale Airport has one runway 3,490 ft. in length. The Dallesport Airport is located 28 miles from Goldendale and is directly across the river from The Dalles, Oregon. The Dallesport Airport was originally built by the U.S. government as a military airport and has three runways of 5,097 ft., 4,646 ft., and 4,406 ft. in length and is scheduled to have a precision instrument approach within the next year. The Dallesport Airport is the only airport in the study areas with a

Fixed Base Operator (FBO). The Dallesport Airport is owned by the city of The Dalles, Oregon.

Forks, Clallam County: Forks, Washington is located on the Olympic Peninsula, the far Northwest corner of Washington State. The Forks area also is an area of scenic beauty with the rugged Pacific Coast on the West and the spectacular Olympic Mountains and rain forest to the East. Forks is located in Clallam County whose county seat is 55 miles away in Port Angeles. Forks is the most isolated of the three case study communities.

The Forks influence area stretches from Neah Bay, 49 road miles to the North to Queets in Jefferson County some 40 miles to the South. The area is over 90 percent forested and due to the more than ample rainfall, the area grows trees exceptionally well, a daily frustration to many area residents as it seems incongruous with the decline of the forest products industry in the area. The Quillayute Indian Reservation is 10 miles from Forks at La Push and the Makah Indian Reservation is at Neah Bay, at the tip of the Olympic Peninsula.

The Forks influence area is bounded by the Pacific Ocean on the West, the Straits of Juan de Fuca to the North and the Olympic Mountains and the Olympic National Park to the East. The Quinault Indian Reservation and Grays Harbor County provide the southern boundary. The climate is characterized by the annual rainfall, which averages 100 inches nearer the coast to 160 plus inches on the Western slopes of the Olympic Mountains. The Forks area economy was one of the hardest hit in the region in the 1980's and 90's by the loss of numerous high paying jobs in the forest products industry – “decimated” was the term used by several interviewees. Additional problems were

created by the more down than up conditions in sport and commercial fishing out of Lapush, Neah Bay, and Sekiu.

The majority of Clallam County's 64,525 residents live in the Central and Eastern part of the county, from Port Angeles east to Sequim, areas not only separated by geography, but of attitudes and culture. The western portions of the Clallam and Jefferson Counties, the Forks influence area covers about 1,400 square miles with an estimated population of about 13,500, including the population of Forks which is 3,120.

(7)

The main employers in the Western area of Clallam County include the Clallam Bay Corrections Center with 450 employees, Forks Community Hospital - 232, Quillayute Valley School District - 200, Olympic Corrections Center - 110, Portac, Inc (wood and lumber products) -100, Washington State Department of Natural Resources - 105, Forks Thriftway (food, pharmacy, and hardware retail) - 65, Allen Logging Company - 63, City of Forks - 36, Clallam County - 27, and the US Forest Service - 19.

There are a number of jobs associated with tourism, one of the constants in the area economy since the Olympic National Park drew about 4.2 million visitors in 2000. That number is deceiving as many of those would have visited the Park from the North, East and Southern boundaries and would not have made it around to the Western reaches of the Park because of the distance from the Seattle area. Most of the individuals employed in tourism related jobs in the Forks area work for motels, restaurants, and small businesses.

Port Angeles, with 18,387 residents, is the closest city of size and is 55 miles away via a twisting 2-lane road to the Northeast. It is a 110-mile drive on a 2-lane

highway to the Hoquiam/Aberdeen area to the south and another 50 miles farther to Olympia, the closest large metropolitan area to the South. It is a 3 to 4 hour trip in a vehicle to Seattle on 117 miles of non-interstate highway, 10 miles of Interstate, and a Ferry across the Puget Sound. There is no rail or scheduled air service in the Forks area.

There are two public access airports in the Forks area. The Forks Municipal airport is located on the south edge of the City of Forks and has a 2,400 ft paved runway. The Coast Guard uses the airport as a refueling station for their helicopters and the emergency medical air transport helicopters that service the Forks Community Hospital use it. There is a helicopter service located on the airport which contracts two Hughes 500 helicopters to area logging firms, a variety of other businesses, the National Park Service, and other state and federal agencies. According to City officials, the land for the airport was deeded to Forks by an individual for use as an airport to be returned to hops production if it is not used as an airport.

The Quillayute Airport is a former Naval Auxiliary Air Station located approximately 10 miles west of Forks. The facility was deeded to the City of Forks by the Washington State Department of Transportation-Aviation Division in late March of 1999. The airport has two concrete runways, each one close to 5,000 feet long. Currently, only the east/west runway (Runway 04/22) is open and it has a displaced threshold of approximately 1,000 feet. The airport has two large WWII hanger facilities, a NOAA weather station, and a WACO Biplane firm utilizing the hangers.

The City of Forks is finishing a FAA Master Plan on the Quillayute Airport, which should be complete by the time this report is published. In the meantime, efforts are being made to clean up the airport property, remove vegetation close to runways and

flight approaches, and stabilize remaining buildings. It is the intention of the City of Forks to encourage general aviation use of the airport and, when master planning efforts are completed, move toward developing improvements both for general aviation and aviation-related business.

EMERGING THEMES

A very clear set of themes about the functions performed by rural airports and the benefits accrued to their respective communities emerged from the interviews in the three communities. These themes included economic development, health care and emergency medical services, support of business and commerce, recreation, community activities, enriched community life and disaster response including fires, floods, snow and ice, and earth quakes. The themes support the strong conclusion that rural airports clearly improve the quality of life in rural communities. During the development of the study outline, functions and benefits were defined separately. As the data collection progressed through interviews, focus groups and analysis, the line between functions and benefits became nonproductive. The functions performed by the rural airport are indeed, the benefits to the community. It became apparent it would be an artificial distinction to try and differentiate between them.

ECONOMIC DEVELOPMENT AND AIRPORTS - THE BOX THAT MUST BE CHECKED

“As long as we remain remote, we remain suppressed as far as our potential.”

Lael Duncan, Co-Chair of the Okanogan area, Alliance 2005 Committee.

The role of airports in economic development surfaced early in the interview process. All three of the case study communities have lost their base of family wage jobs with the decline of the forest products, agriculture, and/or fishing sectors of their local economies. Each is actively pursuing strategies seeking to strengthen local businesses and attract new businesses. Virtually every person interviewed would identify some aspect of the impact of having lost their communities economic base. We would hear that there had once been 20 mills but now there was one, or that “the large veneer plant just closed” or “two apple packing warehouses closed in the past year”. Residents would identify when the last local car dealership left town, or when the last retail clothing store closed or would speak of the efforts of state and federal government to close the Coast Guard station or the area Washington State Department of Social and Health Services office.

The most unique description of past events came in Forks. One Forks official said that during the 1970's, forestry was identified as the Emperor and salmon was its Duke. In the 1980's, a group in black robes dethroned the emperor and its duke. The implications of these losses for all three communities was put in context by a Fork's resident who said, “The area had gone from a thriving logging and forestry economy to one of struggling for economic retention and survival”. Local residents in each of the case study areas expressed in various ways how they know that the reality of the loss of jobs is the fact that real (inflation adjusted) per capita income in each community was higher in 1980 than it is today.

A clear sense of purpose in each community about improving their economic environment was found. Each community is focused on attracting businesses that will provide higher paying, family wage jobs. "An airport is vital for our future" was a thought expressed by a Forks resident and repeated in various ways by virtually every person interviewed in the three communities. It became clear during the interview process that airports weren't just a site for potential development or for access to the outside world, they were part of how each community viewed itself and were part of how they hoped outsiders viewed their community.

The study team was impressed with the individuals that are leading each community's economic development efforts. Each community is taking a different approach with a mix of public and private sector leadership. Each community identified airports as critical in reaching their economic development goals. In Forks, airport development and telecommunications are the two major short-term objectives in meeting the community's economic development goals. With success already in hand in getting a high-speed digital backbone, the airport has become almost the next singular focus. The five-year economic growth strategy for Okanogan County has as one of its primary objectives, to "Develop the Omak Airport". Securing scheduled airline service is a part of that objective. (8) The Omak area also has high-speed digital access. In Klickitat County, airports are identified as key components of the infrastructure that are necessary for economic development. Additionally, significant investments for basic support services such as water, sewer, and utilities have been made at or around the Goldendale and the Dallesport Airports making them ready sites for business and industrial development.

Airports are a necessary part of the local infrastructure if a community has any hope of recruiting new businesses. Dana Peck, the Economic Development Director for Klickitat County discovered the “necessary” nature of having an airport, when as an employee of a large regional energy supplier, he had several contacts with industrial siting firms who were filling out their check lists on local communities. He related the following:

“Businesses, except for the smallest, when seeking to relocate most often retain an industrial siting firm to make a preliminary evaluation of the target communities”. The siting firm usually does its work in the background without the target community even knowing the siting firm is conducting their analysis. It is common practice to use a check list which lists the target community’s assets, i.e. the physical plant, services, educational offerings, political structure, infrastructure, etc. Certain community assets must be present if a community is to make it past the first round for consideration. In almost every case, to make a firm’s short list, ‘the airport box must be checked.’ A community without an airport will be eliminated by the majority of firms who are seeking to relocate or build a new facility. This will happen even before the community has a chance to sell the other attributes of their community.

Forks: Airports and telecommunication are two major objectives of the Forks economic development goal of providing job diversity and replacing jobs. Local sentiment was stated by the editor of the area newspaper, “People are determined to have some kind of economic development to survive.” The community has been successful within the past two years in securing a high-speed digital backbone, with the redundancy that is important for reliability. The digital backbone story is a remarkable story of public

and private cooperation and of government, education, health care, and private sector telecommunication providers coming together to achieve an objective that many thought impossible. One area resident described achieving the digital telecommunications backbone as, "The story of the little town that could."

The Forks Municipal Airport sits at the very edge of Forks with its 2,400' runway and plays a critical role in the life of Forks. It is presently utilized by a local helicopter company based on the field as well as a refueling station for Coast Guard helicopters. It serves as the heliport for the medical evacuation helicopters serving the Forks Community Hospital and is also used for other businesses and recreational general aviation uses which will be detailed later in this study. It has limited possibilities, though, for expansion or for industrial and business development due to its terrain, proximity to Forks, and lack of available land.

Forks community leaders realized there was another airport alternative with far greater potential for business and commerce; that was the Quillayute Airport, 10 miles west of Forks. Forks community leaders identified the Quillayute Airport, a WW II naval training facility that was owned by the State of Washington, as an "extraordinary community asset being allowed to deteriorate". Even though City officials weren't sure the community could afford to take over ownership of the airport, they felt the Quillayute Airport was an asset they couldn't allow to deteriorate to a state where it would be lost as an airport. The realization was, "Things aren't like they were in the past, if we are to keep up with modern technology, we need the Quillayute Airport."

The City of Forks was able to negotiate with the State of Washington and, with the agreement of the Federal Aviation Administration, obtained title to the airport in

1999. Since that time, Forks has been aggressively pursuing a strategy for the Quillayute airport that makes it a key component for economic development in the area. The City of Forks is developing a master plan for the airport, securing the Clallam County zoning ordinances necessary to protect the safety zones to fully utilize the potential capacity of a facility with two 5000 ft runways, very open approaches, and a great deal of land for aviation related businesses.

The City of Forks' first priority is to put the basic regulatory and institutional framework in place and to secure airport neighbors agreement with their plans. Next will be to secure funding to continue the improvement of the property as an airport and as an aviation related business site. The airport has significant available land for locating hangers, businesses, or other aviation related facilities. Area residents have many dreams of how the Quillayute Airport will support a growing local economy. Nedra Reed, long time resident and City Council Member stated, "The airport is a symbol of hope for our future, a star to which we are hitching our wagon." Forks City Mayor Phil Arbeiter closed his interview with the statement, " The airport is one of our lifelines to keep us alive."

Omak/Okanogan Area: The Okanogan County – Partnership 20005, Workplan and Budget is the product of many public and private sector individuals working through a several month planning process. The Workplan states the following vision. (Note: The Partnership 2005 has changed their name to Alliance 2005.)

"Partnership 2005 envisions the citizens and communities of Okanogan County working together to bring economic prosperity to all its citizens. There will be a diversity of vital and growing businesses and industries. The growth will be gradual and

controlled through proper planning, which protects the environment and rural atmosphere. Our families and communities are built on strong values and a positive self-image of the individual. We seek to facilitate the development of high quality public services that are provided at a reasonable cost. We believe the citizens of Okanogan County respect the diversity of cultural and recreational opportunities that abound in our region.” (9)

The very first set of Goals and Objectives on the Workplan lists “Infrastructure”. The very first objective is “Develop the Omak Airport”. Mayor Walt Smith, City of Omak, very early in our interview stated, “Necessary pieces of a community’s infrastructure are water, sewer, land, and transportation and an airport is a necessary part of the transportation infrastructure. It is vital to have an airport.”

The importance of access came up repeatedly in discussions with Omak area residents, access to metropolitan areas for technical advice, services, parts, consultants, and medical technology. The Acting Okanogan County Planner identified the importance of being connected, “The airport connects us with metro areas”. He expressed the perception of several Okanogan area residents that “If you have an airport, you are connected.” Another area resident when talking about the Okanogan Legion Airport, said, “Airports are a window to the world. They are a portal for ideas, people, and communication.”

At a meeting of the Alliance 2005 Committee, the Okanogan area economic development committee, members were asked to write down what they believed to be the functions of their airports. A few of the common economic development related functions airports provide to their communities reported by these citizens were:

- Airports increase economic growth.
- Airports provide access to services, medicine, connecting national flights, and business travel
- Airports provide tourism accessibility.
- Airports make recruitment of businesses easier – it’s easier to get them here and keep them here.
- Airports present a modern face.
- Airports provide economic development opportunities.
- Airports are necessary for business recruitment.
- Airports enhance local businesses with their transportation needs.

Goldendale/Dallesport: Sitting in the Dallesport Community Center on an August evening, one of two members of the Dallesport Community Council began our interview with the statement, “The airport is part of our dream to have a little town that will develop properly.” Dallesport is an unincorporated “village” which borders the Dallesport Airport. The airport is owned and operated by the city of The Dalles, Oregon. Although neither of these two interviewees had much experience with the airport, the interview captured how many of the residents in each of the case study communities felt about “their” airports. The airport is central in their minds as a necessary asset for their community’s economic future.

Klickitat County and the City of Goldendale have recognized the importance that airports play in economic development (see the information provided earlier about the industrial siting checklist). The airports are not as central to their current economic development goals as in Forks or Omak, yet are believed to be critically important for

their future. Klickitat County Commissioner Ray Thayer pointed to the County's effort to secure the \$12.2 million wastewater project for Dallesport even though the City of The Dalles in Oregon owned the airport located there. The wastewater project will serve the community of Dallesport, the Dallesport Airport, and the Dallesport Industrial Park, across the road from the airport.

The City of Goldendale has had recent experience of the importance of how an airport supports community development. Goldendale has been chosen as the site for a gas fired electric generating facility. While there were a number of other contributing factors that were also important, City of Goldendale Mayor Mark Sigfrinius and local economic development officials suggested that without the airport, it is highly unlikely Goldendale would have been the site for this facility. The energy plant's management flies into the Goldendale airport regularly to visit the generating plant site now under construction. Goldendale was also in the midst of updating their Airport Master Plan

Finally there were numerous other useful references to the importance of airports and economic development by study interviewees.

- "If you don't have an airport, you're done" – Omak.
- "Our only access to the outside world is over a winding two lane road which has over 60 old bridges. Without an airport, we can be easily cut off. No one will want to locate here without transportation alternatives" – Forks.
- "We are a little less remote with an airplane" - Forks.
- "An airport is critical if we are to have a world class health care system" - Forks.
- "The airport is our hope for access to the outside world" - Omak.
- "Without access, there is little hope for our future" - Goldendale.

- “Transportation is a big issue in getting business” - Omak.
- “We perceive aviation as a major player in our future” - Forks.
- “Time is the issue; without good facilities, we are a long drive at the end of a long flight” - Forks.
- “Access is the key issue – accessibility to our area” - Omak.
- “No way are we going to survive in the future without an airport” - Forks.

HEALTH CARE – EMERGENCY MEDICAL SERVICES

“Our airport was invisible until I needed it.”

Kristi Longenacre, Okanogan area U.S. Forest Service employee whose life and that of her unborn baby were saved in January 1989 by a late evening flight to a Spokane hospital.

Emergency medical air transport came up early and often in the interview process. Very early in the scheduling process, a team member was calling the Okanogan office of the U.S. Forest Service seeking an interview with the air operations officer. Kristi Longenacre, a USFS Information Specialist, answered the phone. When we explained the purpose of our study, she wanted to make sure we understood the importance of airports to non-pilots. She had developed very serious complications in the seventh month of her pregnancy. The neonatal specialists were available in Spokane and she needed their treatment quickly. It was a winter night with snow and icy conditions and the ground trip in the best conditions was a 3.5-hour drive. A fixed wing aircraft was

able to land in Omak, and Kristi was transported to Spokane in time to save her life and that of her unborn child.

Kristi wanted the study team to understand that hers was not the only experience where emergency medical air transport had saved lives. She spoke of how emergency medical air transport had been critical to several other families in the Twisp/Winthrop area where she lived. Prior to her medical transport to Spokane, she was barely aware that the airport existed. Her impression about the existence of the airport is understandable. If someone does not live within the flight pattern of a rural airport or has a special interest in airplanes, it is possible to miss most of the activity that happens at the airport. The perception that not much happens at rural airports is typical of the impression in many rural communities.

For many trauma, cardiac, neonatal, and respiratory patients, time is critical. Individuals in emergency medical services talk of the "Golden Hour", the first hour after a heart attack or serious head injury or burn when advanced treatment can prevent longer-term damage or even save life. Harborview Medical Center in Seattle is the only Level I facility in Washington. The most serious head injuries, burn victims, and other illnesses or injuries needing the highest level of care are transported to Harborview.

There was another case that provided evidence of what happens if emergency medical air service is not available. An interviewee in Forks told the team about her husband who had a cardiac event that required treatment in Seattle. It happened on a night when the weather was bad enough an air transport was not feasible. Her husband had to be transported to Seattle via ground transport, a trip that took over 4 hours on icy

roads. As a result of the delay in treatment, he suffered permanent damage to his heart that might have been avoided if air transport had been available.

The benefits provided by rural airports to the level of health care in rural communities goes beyond the air transport of trauma, cardiac, or neonatal patients. Mike Billing, Administrator of the Mid Valley Hospital in Omak related the following story. An Omak surgeon was performing hip surgery and had opened up the hip of a patient when it was realized that the damage to the hip was far worse than the diagnosis indicated. After consultation with specialists in Spokane, it was decided that a new prosthesis, just released to the market, was needed. A prosthesis was located in Spokane along with a technician who was trained to install it. Bone for transplant was located in Pullman. A charter aircraft picked up the prosthesis and technician in Spokane, flew to Pullman to pick up the bone, and then flew to Omak. Five or six hours after the operation had started, the surgery was successfully completed at far less risk to the patient than if the hip were sewn up and the surgery had to have been postponed to a later date. Without the rural airports at Pullman and Omak, this would not have been possible.

Aircraft have been used to bring blood to Omak, Forks, and Goldendale in times of blood shortages. Bone and tissue have also been flown in using fixed wing aircraft. An entry in the Omak Pilots Lounge guest book identified the reason for one flight was "tissue". The Omak Mid Valley hospital has flown in lawyers with specific medical contract experience and specialists to help the hospital develop a dialysis center. A medical equipment company flew into Omak and took several hospital employees to the home office to inspect medical equipment that the hospital was thinking of buying. In Goldendale, an emergency room physician commuted each weekend to Goldendale from

Montana in his airplane. On alternating weeks, a dentist maintains a practice on the West side of the Cascade Mountains and in the Twisp/Winthrop area. He commutes between his offices in his airplane. A psychologist commuted to Goldendale in his aircraft as well.

Medical specialists have been flown to case study area hospitals to consult or assist in operations. Organs have been harvested and transported using the Omak Airport. One event was captured in the movie, "A Heart for Olivia". Individuals needing transplants have been transported to the hospitals where the transplants were to take place. Pilots in the Goldendale and Omak areas spoke of volunteering their own aircraft to fly community residents to visit relatives who for one reason or another were patients at distance hospitals. A Goldendale pilot had flown to Montana to bring home a neighbor who had an automobile accident while on vacation.

Mr. Billing described the health industry as "maturing". The system had evolved with large medical centers in urban areas and smaller branches in rural areas. The chasm between rural and urban medical facilities is growing and is supported by the rapid growth in technology. Forks and Omak, the two communities where we were able to set up interviews with hospital personnel, are very proud of their accomplishments in modernizing their hospitals and are working hard to secure even higher levels of treatment for the citizens in their area.

Hospitals in each of the communities are facing their challenges and are looking to the future. The Goldendale Hospital recently put a bond vote to the public to add an acute care center. The bond passed with a 70% majority. All three communities have had difficulty recruiting and keeping staff. They are unable to compete with the salary

levels offered in urban areas. They are shifting the way they recruit, focusing on the rural quality of life that each community is able to offer and are having some success in the approach. The Mid Valley Hospital in Omak, the Forks Community Hospital, and the Goldendale Hospital have installed or are installing ct scan machines. Hospital administrators at Omak and Forks spoke of the importance now and in the future of having access to the expertise and technology available at the large urban medical centers. Both have high-speed digital connections with special diagnostic studios in their hospitals so that the specialists at the medical centers can participate in real time in the diagnosis with the physician in Forks or Omak. Both expressed how important their airport was to their future as well (the study team was unable to interview Goldendale Hospital personnel).

Rural hospitals are forming a variety of partnerships with their urban counterparts. They may be a subsidiary of an urban medical system (corporate model), or maybe part of an alliance (closer to the cooperative model), or may join a network of hospitals, physicians, and other providers in which each remain independent of the others in terms of their business practices but work closely together to provide medical services. (10). In each business or health care delivery model, access to the urban medical centers by rural hospitals remains critical to providing quality health care in rural communities.

The Forks Community Hospital remains an independent not-for-profit financial entity while the Omak Mid Valley Hospital has a formal relationship with a health care system in Spokane. Forks residents spoke with pride about their Community Hospital and how hard the community worked to support the hospital because the community realized how important "world class" health care was to their citizens.

The digital connection is not a replacement, though, for the “air” connection. The “air” connection is of critical importance as well. In the past, patients in Forks had to be ground transported to Port Angeles, 56 miles over a winding two lane road, and then were airlifted to Seattle, losing critical time. Once again, a negative example was given to show why air transport was so important. This past winter a patient had been transported to Aberdeen, 110 miles to the south because the road to Port Angeles was snowed in and an airlift was not possible due to weather conditions(No approved Instrument approach in Forks).

There were at least 66 medical airlifts from the Forks Municipal Airport to Harborview, Children’s, and Virginia Mason Hospitals during the 12 months preceding our interview in August of 2001. (We did not ask hospital personnel to do an in depth analysis of their records). There had been another 31 ground transfers to Olympic Memorial in Port Angeles, some of which were necessary because there is no instrument approach in the Forks area. The Omak Mid Valley Hospital estimated that about 50 fixed wing medical airlifts originated in the past year from their hospital and used the Omak Airport. Omak City personnel working at the airport and local pilots using the Omak airport thought this estimate was low. Mid Valley has a heliport and the airport extends the usefulness of emergency medical air transport since the airport has lower weather minimums.

The study team was surprised to find that the Tonasket Airport, with a 3000’ runway, is used by the MedStar fixed wing aircraft. A local nurse thought that there were about 25 patients a year airlifted out of Tonasket. Tonasket based pilots spoke of the twin engine, turbo-prop, King Air aircraft landing and then backing the full length of the

runway at Tonasket to pick up patients. In each community, interviewees expressed strong interest in improved instrument approaches as one investment that would improve the emergency medical airlift service to their community.

Local pilots and airport personnel were able to identify specific times when the Dallesport and Goldendale airports had been used for medical air transport purposes. While hospitals in The Dalles and Goldendale have heliports and the majority of their airlifts are with rotary wing aircraft, the airports are used in poorer weather conditions and when a fixed wing aircraft is used.

The hospital and medical air transport personnel that we interviewed all spoke of the life and death nature of most cases in which medical air transport is used. All spoke of how the quality of life in each community was better because of the availability of the air transport option and how the quality of life would deteriorate if the airport were taken away. Mike Billing, Mid Valley Hospital Administrator in Omak closed out our interview with the statement, "The airport is part of the safety net for our community. The airport puts a piece of rope in the safety net that we need if we live here. It is an invisible lifeline."

All of the hospitals in the case study community areas were Trauma Level IV facilities, although the Omak hospital was in the process of evaluation and was hoping they would be classified as a Trauma Level III hospital. Level IV hospitals provide only initial evaluation, stabilization, diagnostic capabilities and transfer to a higher level of care. Level IV facilities may also provide surgical and critical care services if they have the trained personnel and appropriate equipment. Patients at Trauma Level III, IV, and V medical facilities needing higher levels of medical care than that offered at those

facilities, are “packaged”, that is stabilized and prepared for transport at the rural hospital, and then sent on to one of the urban hospitals providing the higher medical service available at Trauma Level I or II facilities.

The medical transport system is a well-developed system supported by hospitals, state health officials, Emergency Medical Services agencies, for profit ambulance companies, volunteer EMS units, fire departments, and the Emergency Medical Air Transport Companies providing aircraft, and flight medical crews. Procedures have been developed that are clearly understood by everyone in the system about the transport of critically ill or severely injured patients. Patients being transported on one of the emergency medical air transport aircraft receive the highest-level treatment possible. Staff for a normal air medical transport includes a pilot and two extensively trained personnel with critical care trauma experience. These could include a registered nurse plus another registered nurse, a registered respiratory therapist, and or a neonatal/pediatric care specialist. If patients are 14 years or less in age, a trained infant/child nurse is required.

Rural Washington airports are necessary for rural residents to access the medical specialties and procedures important for medical treatment. Access to the higher levels of specialized care offered at urban hospitals is made possible through the use of emergency medical air transport service that is provided by helicopters and fixed wing aircraft. Ground transportation of cardiac, trauma, respiratory, or neonatal patients to the Trauma Level I and II facilities is the secondary alternative that is used when weather conditions are not conducive for flight or all available aircraft have been dispatched for other calls.

Emergency medical air transport service is provided by rotary wing as well as fixed wing aircraft. For MedStar, a non-profit critical care transport service that serves Eastern and Central Washington as well as parts of surrounding states, the split of operations is about 66% helicopter, 28% fixed wing, with the remaining 6% by ground vehicle. About 60% of the patients transported are cardiac patients with the remaining being injury trauma victims, neonatal emergencies and respiratory patients. For MedStar, 80% of their flights are transporting patients between facilities and only 20% are on-scene response. MedStar bases two helicopters in Spokane, one in Moses Lake and two fixed wing turbo-props in Spokane. MedStar serves the Omak/Okanogan case study area with rotorwing and fixed wing aircraft.

AirLift Northwest, another service providing rapid emergency air transport service in Washington, has four IFR equipped helicopters based at Bellingham, Arlington, Seattle - Boeing Field, and Puyallup. They have Lear Jets located in Juneau, Alaska and Boeing Field in Seattle, and a turbo-prop fixed wing aircraft in Wenatchee. Airlift Northwest serves Forks with rotorwing service and their fixed wing aircraft are available throughout Eastern Washington for transport over the mountains to Harborview or Children's Hospitals. Over 40% of AirLift Northwest flights are "on-scene" transports with the remainder being primarily inter-facility transports.

Other medical transport services use rural airports. Angel Flight is a service to patients and their families that complements the emergency medical air transport service. Angel Flight West, based in Santa Monica, CA, is a non-profit charitable organization designed to facilitate access to health-care by arranging free air transportation in private aircraft. Angel Flight links volunteer private pilots with needy people whose health-care

problems require travel to and from medical facilities throughout eleven Western states. They also provide transportation to camps designed for children with special medical needs, fly prearranged flights of organs, blood and tissue to transplant recipients, as well as many other compelling human needs. (11).

Angel Flight transports patients who are stable, can fly in a non-pressurized aircraft, can sit up for the duration of the flight, and who do not need attending medical personnel to travel. Angel flight will also transport the family of patients who are staying at distant hospitals or other medical facilities. They will fly from any airport to any destination. They often will return the patient to home that has been airlifted by one of the emergency medical airlift companies. There is no charge to the patients and their families for the flights. There are two hundred members in Washington Wing of Angel Flight West with 40 pilots living in Eastern Washington. The Washington Wing flew 50 missions in 1998, the first year of the Washington State Wing, 186 in 1999 and 200 in 2000.

Angel Flights were mentioned by hospital personnel or other interviewees in the Omak/Okanogan area, the Forks area, and in the Dallesport/Goldendale area. One of the important contributions of Angel Flight is for patients needing ongoing treatment or rehabilitation services such as cancer treatments or burn rehabilitation. The growth in the number of Angel Flight missions is expected to continue as one additional way that rural residents can access the specialized technology and treatment available at urban medical centers.

The importance of having an airport for quality health care is much like having the airport box checked for economic development. Without an airport, the technology

and highly trained medical professionals available at the handful of medical centers located in urban centers are not readily available to rural residents. Having an airport available to access the treatment and personnel at those hospitals is a necessary requirement for maintaining quality health care in rural areas.

BUSINESS AND COMMERCE

Each of the case study community airports has been used extensively for business reasons. The most evident use is the agricultural aerial application businesses that use the Goldendale, Dallesport, and Omak airports when spraying in the area. The secondary economic benefits derived from the agricultural production they support have been well documented. The five-day a week Federal Express operation at Omak was identified by almost every one interviewed in the Omak area. Small package shipments touches about every business in the community. UPS also flies into Omak, as does a high value package service. There is an aircraft maintenance business and an aircraft parts fabrication business at Omak. The City of Omak runs the fuel concession at Omak and sells about 30,000 gallons of Jet A and 10,000 gallons of 100LL annually. There are Part 135 air taxi/charter operators at Twisp and Okanogan Legion Field.

At Quillayute, near Forks, there is a 1929 WACO experimental plane parts and kit manufacturer. There is a helicopter business located on the Forks Municipal Airport who operates two turbine helicopters for logging, search and rescue, wildlife surveying, and almost any other use that a helicopter can be used for. The helicopter firm also sells Jet A fuel on the airport, which is the main fuel depot for the Coast Guard helicopters, located at La Push.

General aviation aircraft are based at each of the airports. There is demand for additional hangar space at Dallesport, Goldendale, Omak, Okanogan, Twisp, and Tonasket. There is a Fixed Base Operator at Dallesport who sells fuel, provides flight instruction, and who also fabricates and sells composite helicopter parts. Sales of fuel at Dallesport was estimated to be about 30,000 gallons of Jet A and 100LL in 2000. The operator of the Dallesport FBO has a personal research and development project, developing a quiet airplane, which can operate out of congested airports with no more noise at the perimeter of the airport than a car on a nearby road. An expression of his frustration in solving a vibration problem was written on a blackboard in the shop; filled with equations and drawings in the shop was the note, "They are exploiting the laws of nature! Those bastards!"

Aircraft operating from the airports in the study areas are used for a wide range of non-airport based business purposes. A cattle buyer flies weekly to Dallesport for the cattle sale. Out lying farmers and ranchers fly into "town" to shop, pick up parts, or to visit with their accountant, lender, or lawyer. Local aircraft are used to fly to purchase equipment, to do field and crop inspections, to search for cattle and to attend farm auctions.

An apartment owner from the Portland area, flies in his maintenance personnel from Portland to Goldendale to service an apartment complex in Goldendale. Local real estate firms take prospective customers to view properties. Local aircraft are used for real estate appraisal. Cancelled checks are picked up. An auto parts storeowner uses his plane to fly to business meetings, to check out other stores, and occasionally to fill a parts order. This owner also used his plane to fly into Dallesport when negotiating to purchase

the auto parts store. Without the airport, he would not have located his business in the area.

Aircraft operating from area airports are being used in power line and pipe line inspections. Firms exploring for wind energy sites have used the Goldendale and Dallesport airports extensively. Prospective developers and business purchasers use the airports regularly. Fish and Wildlife contract or chartered aircraft fly in and out of Forks 300 days a year. They are counting birds, salmon, elk, etc. Ten to 12 seat planes out of the Seattle area use Forks and Quillayute to drop off and pick up fishing and hunting parties. The King 5 News helicopter from Seattle landed at Forks while the study team was there. They were covering a boating accident off the coast some 12 miles away. They use airports because they can land there without worrying about having to get prior approval to land.

The Twisp Municipal Airport Manager, a volunteer position, owns and operates a welding business. A customer had the contract to provide and maintain the port-a-potties at a U.S. Forest Service fire fighters base camp in Wenatchee. There were 5,200 persons using this camp during an especially tough fire during the summer of 2001. The pump engine on the pump-out-truck quit working. An identical pump engine was found in Spokane. The Welding business owner arranged to have the engine delivered to Felts Field in Spokane. The owner flew his Cessna 182 to Spokane, picked up the pump, flew into Wenatchee, and replaced the pump on the truck, all in time to maintain the service on the port-a-potties at the fire fighting base camp.

This was but one example of the numerous experiences that were related to the study team about aircraft being used to bring time sensitive parts to the case study

communities. Parts were obtained for logging businesses, lumber mills, farm businesses, machine shops, auto parts stores, local fabricating businesses, hospitals, and even local hardware stores. Although the need for such service has declined somewhat due to the small package service that now reaches virtually every community (most are dependent on a rural airport as well), there are still numerous cases of the importance of having an airport close by that can be used for this purpose.

Another major use of local airports is to bring out-of-area expertise to local areas. Architects have flown in to consult on building projects. Several interviewees spoke of engineers coming by plane to review projects, prepare bids, or to consult with local officials on construction projects. As related in the health care section, consultants have flown in to work on contracts, design of dialysis units, and to work with hospital administrators on equipment purchases. Large retail chains fly personnel in an out – Wal-Mart and Target were two examples. Les Schwab regularly uses airports in the study communities to fly personnel in and out. Lawyers fly into trials and for pretrial or mediation sessions.

During the siting of a large land fill project in Klickitat County, environmental staff, engineers, management, public officials - virtually every profession needed for that project arrived or departed from one of the local airports. A gas fired energy plant was under construction during the time the study team visited Goldendale. Several interviewees spoke of the repeated flights members of the construction and management firm had made before and during construction of the facility. While visiting Goldendale in June, the study team observed a large single engine Pilatus turbo-prop at the Goldendale Airport. Management of the energy firm was visiting the plant. A local

citizens group seeking to site a prison flew to Olympia and visited prisons using a charter aircraft.

While waiting for a focus group to convene, a study team member browsed through the guest logbook in the pilot's lounge at the Omak airport. Out of 103 entries covering an 18-month period, there were 52 that could be definitely identified as business related. Other business related operations identified by study participants at their rural airports included movie shoots, making commercials, air taxi services, other aviation related activities such as flight training, instrument training, glider operations, photo mapping, sky diving, and currency training.

A Goldendale resident spoke of the need to become more interconnected with larger economic areas. A schoolteacher in Forks talked at length of the importance of access. She talked of an instance when a closed road shut down work on a new building addition for the high school. The UPS truck could not get through. With the increasing specialization of American business and life, access to the expertise found in urban areas takes on increasing importance to rural communities. There was ample evidence provided to the study team supporting this finding. Finally, the team discovered an interconnection of the airports with business activities was deeper than anyone in any given community had suggested.

PUBLIC SAFETY, DISASTER AND EMERGENCY RESPONSE:

Rural airports in the study areas are being used to support firefighting operations, as a base for single engine air tanker (SEAT) operations (water and retardant drops), as a base of operations for flood relief, to support search and rescue, and as a "port of entry"

for Red Cross relief flights. Airports are also used to support public safety operations by police agencies.

The role for rural airports in support of public safety, disaster and emergency response is changing. The U.S. Forest Service conducted a National Air Tanker study, which called for consolidating Forest Service Type 1 air tanker operations in Moses Lake and the Bend area. Type one air tankers are large multiengine air tankers with the capacity to haul 1,800 gallons or more of water and retardant. The Type 1 air tankers located at Wenatchee and Omak and the base of support were relocated to Moses Lake, an event that was identified by several Omak area interviewees as one of the recent blows to the area economy.

About the same time this change was taking place, the U.S. Bureau of Land Management brought 6 single engine air tankers (SEAT) into the Northwest as an experiment and located one at Omak. SEAT aircraft are agricultural aerial application planes that have been converted for use as aerial water and retardant "bombers". They have been widely used in the Southwest. The converted agricultural planes carry up to 799 gallons of water or retardant. The introduction of the SEAT planes has changed the procedures under which aerial drops on fires are used. Aerial water or retardant drops using the large aircraft were only made if there were people on the ground. Now, the SEAT aircraft are sometimes dispatched first to a fire, even before firefighters have reached the fire.

The first two seasons that Seat aircraft were in the PNW, only one SEAT was located at Omak. The experience was so good with the smaller aircraft and with their faster response, that a second smaller SEAT was contracted to be located at Omak for the

2001 fire season. The single engine air tankers at Omak are under contract to the Bureau of Indian Affairs and are supported by the Colville Tribe.

Dave Nee, the Assistant Fire Manager for the Colville Federated Tribes described how the SEATs, operating from the local airport, had improved the ability to control fires. Fire control officers are able to dispatch the SEATs almost as soon as a fire is reported. The SEAT in many cases is able to knock the fire down to the extent that ground crews can more easily contain the fire when they arrive. Dave Nee, in the forest and range fire fighting business for over 15 years, commented that the SEAT was a major advance in the technology of fire fighting.

It is possible that other SEAT will be located at other rural airports in the future. The SEATs operational radius is about 60 miles although they are occasionally dispatched on longer missions. The needed runway length is 3,200 feet. They also need a water supply. One afternoon when the study team was in Omak conducting interviews, SEATs flew 19 missions from Omak to a fire on the Colville Indian Reservation. One study team member observed that if we hadn't had our interviews with the SEAT crew and hadn't been looking for aircraft activity, we would have missed these planes and not understood their mission, even though they flew within a mile of downtown Omak 38 times that afternoon.

The team asked Dave Nee, Dexter Nicholson, James Albertson, and Liz Dick, Colville Tribe SEAT support personnel, with over 40 years of fire control experience among them, about the changes in fire control they had experienced over the past years. There was no hesitation in the response - better training for fire crews. In the old days, when a fire was discovered, the truck stopped and picked up any available body to help

fight the fire. This is no longer true. Individuals are not allowed on a fire without extensive training. This has increased the importance of rural airports in fire control. A limited number of highly experienced crews are used throughout the West to fight the toughest fires. They are transported to a fire by aircraft, which use rural airports.

The U.S. Forest Service fire control leadership and administrative apparatus moves from location to location using the "Mosquito Fleet". The Mosquito Fleet uses aircraft, from Cessna 182's to Lear Jets. For smaller fires, the fleet may only be a few aircraft. For a larger fire, this may be a number of aircraft. The airports at Omak, Twisp, Okanogan, Goldendale, Dallesport, and Forks had all been used at one time or another by part of the Mosquito Fleet. The lead aircraft for the Type 1 air tankers, a smaller aircraft like a twin engine Beech Baron, operate out of those rural airports who are closer to the fire than the Type 1 bases in Moses Lake or Redmond, Oregon. Single engine aircraft are used for fire spotting, and interviewees in Twisp and Goldendale spoke of observing these activities at their airports.

The Washington State Department of Natural Resources (DNR) is responsible for fire control on state lands. The study team was unable to interview DNR personnel because our interview period coincided with a bad fire season. Each time contacts were attempted, DNR personnel with first hand information on their air operations were involved in an active fire. Local residents in Forks, Goldendale, Dallesport, and the Omak region all spoke of witnessing aircraft under contract to DNR for fire control operating out of their airports.

Because of the importance of aircraft to fire fighting efforts, rural airports become operation bases for many of the fire fighting functions. In addition to providing an access

point to insert fire crews and for bringing the administrative leadership apparatus to a fire, they are the base of support for helicopters flying water to the fire or providing other support. The helicopter "base camps" will be set up at the closest airport to the fire. The support includes fuel trucks, spare parts, the maintenance crew, and campers or travel trailers as portable crew quarters. These self-contained units will be used on federal, state and tribal lands for forest fires, brush fires, or range fires. Goldendale interviewees spoke specifically of their airport being used several times in this manner.

Rural airports have also been used in times of floods, earthquakes, ice storms, and other natural disasters. One example cited by interviewees in Dallesport and Goldendale occurred in 1996. The Columbia Gorge between the Dalles and Portland was closed to ground traffic for one month due to floods and mud slides. This is the major East - West commercial ground route between Portland Oregon and points east. It is also the primary artery for Goldendale, Dallesport, and The Dalles to the medical facilities, distribution warehouses, etc. located in the Portland area. The Dallesport and Goldendale airports were used for a wide variety of air operations during this period. The Red Cross flew out of these airports in making their aerial assessments of the flood damage. Army Blackhawk helicopters shuttled blood and tissue from Portland. Governors from Oregon and Washington, as well as other state and federal officials, flew into the Dallesport and Goldendale for their assessments. Parts, medicines, and people were delivered to the area using Dallesport and Goldendale.

It is not only the experience of actually using an airport during a natural disaster or emergency that provides a benefit to a community. It is the potential that the airport will be there when and if it is needed. Forks is 56 miles from Port Angeles, using a

winding two-lane highway. This road has been blocked for up to a week due to snow, ice, or slides. Over 50 percent of our Forks study participants spoke of the problems of isolation caused by being cut off. Their experiences, while not catastrophic to the community, raised fears that this condition might not only impact access to critical supplies and materials, but would also affect their ability to attract businesses. Several spoke of the fear of a large earthquake that might damage many of the old bridges that are on the roads to Port Angeles and the Seattle area. This need to have an alternative in times of disaster is another driver for their determination to improve the Quillayute Airport to the point they can get an instrument approach. The Forks and Quillayute airports can be used now, but neither has an approved instrument approach, which will be critical for them to make sure flights can get through in most conditions.

Law enforcement agencies were not available for interviews. Study participants identified a number of police agency activities that they had participated in or had observed. Goldendale and Tonasket pilots spoke of volunteering their airplanes to assist the local sheriff in search and rescue and for tracking down fugitives. Goldendale and Tonasket pilots spoke of observing uniformed members of the sheriff's department using aircraft but were not aware of the specific purposes of those flights.

The Tonasket Airport is used as a regional training site for police and sheriff's patrol high speed driving and evasive maneuvers training. The Oregon State Patrol flies regularly into Dallesport and has initiated search and rescue and disaster operations from that airport. The State Patrol has delivered blood to Omak. Based on the information the study team gathered, the study team found that public safety, disaster, and emergency

response uses of the rural airports in the study areas are far higher than any observer expects or that we were able to document during this study period.

The Coast Guard uses the Forks Municipal Airport as the refueling station for their rescue helicopters operating out of La Push. While the study team was in Forks, there was an active search underway off the coast for occupants of a fishing boat discovered on the rocks near La Push. The Coast Guard helicopters were seen making several trips to the Forks Airport to refuel during this period.

The helicopter company located on the Forks Airport is under contract to the U.S. Forest Service and the U.S. Parks Service for search and rescue operations in the Olympic National Park and surrounding national forests. They had made a rescue of an injured hiker from a very dangerous location the week prior to our visit.

The use of aircraft in emergency and disaster operations is taken for granted today. Virtually every individual in America with a television has viewed pictures of helicopters rescuing flood-stranded persons. Aircraft dropping retardant on fires is stock footage for every news telecast covering a brush or forest fire. Less visible are the deliveries of blood, tissue, critical parts, or state and federal emergency officials quickly to disaster sites to put the relief and reconstruction process underway. The leadership and administrative personnel necessary for fighting fires arrives to direct fire control operations in aircraft, which are not witnessed by the majority of the nearby communities. The critical ingredient in most of these operations is the rural airport. The importance to the residents of those communities of the use of their airports during disaster and emergencies, while difficult to quantify, is a "hidden" asset that might not be missed by the community until they need it.

Enriching Community Life

“The rotating beacon at the airport is a sign of security and the airport makes Goldendale more attractive.”

Deborah Heart, Retention Specialist, Welfare to Work, Center for Administering Rehabilitation and Employment Services, Goldendale.

The airports in the study communities enrich daily community life in many different ways. An outsider, if paying attention to the activities at the airport, might occasionally see an airplane taking off or landing. The reason that flight was made is not readily apparent. What the study team discovered from the study is that those flights touch almost every sector of life in the local communities. Taken individually, each of the activities identified in this section may seem inconsequential. Viewed as a whole they paint a picture of how the activities associated with the rural airport enhance the lives of individuals living and working in the case study communities. The functions identified in this section are in addition to the emergency, medical, economic development, and business functions identified in previous sections.

Several of the interviewees in Goldendale and in the Omak area reported using their aircraft to fly to family reunions or to bring family members to a family reunion or to visit distance family members. In one case, the only way an 80-year-old parent could make the reunion was if the travel time could be shortened using an aircraft. Another plane owner uses his plane to fly his grandchildren between divorced parents, making sure his grandchildren spend time with each of their parents.

As reported previously, one Goldendale plane owner volunteered to fly to Montana and bring home a neighbor who was injured in a car accident there. It was also in Goldendale that a local pilot used his plane to provide overview flights of the area for a prospective pastor and a physician that was being recruited for the local hospital. Interviewees reported making flights to purchase furniture. Numerous other shopping trips were reported. Several interviewees told of flying family members or friends to airports where scheduled airline service was available. Area farmers use their aircraft to "visit" town, pick up parts, do the weekly banking, or grocery shopping. One pilot uses his plane to fly regularly to a Christian businessmen's meeting, which is held about 150 miles away. Local businesses use aircraft to visit business meetings, pick up parts, or in one case, bring potential buyers for their business to the area.

One interviewee called the rural airports "portals" to public policy activities. He told of flying friends and associates to federal hearings on a variety of issues. He and others had also flown to airports with scheduled airline service on the way to Washington D.C. to petition the Congress. Several interviewees told of Governors from Dixie Lee Ray to Gary Locke flying into the communities using the local airports. The day before the study team visited Goldendale, Senator Maria Cantwell had flown into Goldendale for an emergency meeting with area leaders about the difficulties the 2001 energy issues were causing area aluminum plants. The meeting would not have taken place without the airport since Senator Cantwell had but 3 or 4 hours in her schedule in which the meeting could take place. Representative Doc Hastings has also landed at Goldendale to visit the area. Other interviewees told of area lawyers and judges utilizing locally based aircraft to attend bar, state judiciary, or law refresher course meetings. Several other interviewees

told of flying to Olympia when the legislature was in session. Local pilots reported the volunteer use of their aircraft to take local city and county officials to meetings in their aircraft.

Local airports host community events. Tonasket, Twisp, Forks, Dallesport, and Quillayute airports have been the site in recent years of summer community festivals. A classic car and antique aircraft show is often combined with a fly in. There is usually an air show in combination with a fly in as well. In Tonasket it is the Father's Day Fly In with a pancake feed, an event attended by 80 percent of the local community. In Forks, the Lions Club sponsors an annual Salmon Bake and Fly In, an event mentioned in most of the interviews in the Forks area. Dallesport alternates its Fly In with Hood River, Oregon. In addition to large numbers of local residents, fly ins often draw visitors from a several hundred mile radius as plane owners often plan extended weekends around the Fly Ins in the region. Non-flying residents in Dallesport, spoke with pride about the community event that is hosted at the Dallesport Airport. They called it an open house; the pilot community called it a fly in. The Fly Ins are attended by more non -flyers than flyers in each of the communities.

John McKnight, a nationally known and respected community development consultant and Professor at Northwestern University, focuses on building communities. He has traced the importance of private citizen "associations" in building American communities during the 1800's and their continued importance today. Mr. McKnight identifies strong communities with strong associations of individuals drawn together by a common community purpose. His focus on identifying the assets in a community and

building on those assets has become the model for the United Way and numerous other organizations interested in community development.

Pilots' groups are an example of that kind of association that strengthens communities. The pilot groups at Tonasket, Twisp, and Okanogan Legion airports provide most of the maintenance and up keep for their respective airports. They organize positive activities that the community can participate in such as the fly ins. The Experimental Aircraft Association local Chapters regularly provide introductory flights to the youth in the Dallesport and Okanogan/Omak areas. While the relationship between the airport owner and the pilot associations may not be as formal at other airports, the pilot community is active in supporting the local airport and other community events in each of the case study communities.

While the airport maintenance effort is undertaken in the pilot's own self interest, the benefit is that the airport is provided to the community at minimal cost to the public treasury. In some cases, this is an informal relationship with the City Council. In the case of Okanogan Legion Airport, the relationship has been formalized through a contract with the pilots association, which has formed a 501(c) (3) organization. The pilot groups also organize various community events at the airports, primarily the fly ins. The Tonasket group has a fund that is used to provide scholarships for local high school students to learn to fly. Pilots' groups have been called upon to assist local law enforcement authorities in search and rescue, in looking for fugitives, and occasionally in transporting a member of the Sheriff's office to meetings.

A non-flying interviewee in Goldendale related how the JC's had organized the community to build the Goldendale Airport through the use of volunteer labor and

donations. This had taken place 17 years prior to our interview but, as a JC member, she could still identify this as one very important community-building event in her community. For many residents, airports provide an improved sense of how they feel about their community. This was a common thread in many of the interviews.

- “Having an airport validates that our community is capable of growing and sustaining and lends credibility that we are a grounded community” – Forks.
- “Airports provide a feeling of connectedness versus isolation” – Omak.
- “An airport is an essential public facility. Our lack of alternate routes makes it a part of our basic infrastructure necessary for the health and safety of our citizens” – Forks.

The airports are used as a place where model plane clubs can fly their model aircraft. Local pilots told of offering scenic flights to neighbors and out of town visitors. The Dallesport airport has recorded several planes that were following the Lewis and Clark Trail. Business jets have landed at Dallesport from Dallas, Texas and New York to pick up puppies from a breeder in the area. Interviewees told of psychologists, emergency room physicians, and dentists commuting to work using airports in the study communities. Harrison Ford, who has been known to use his own aircraft in the movies he stars in, signed the logbook in the pilots lounge at the Omak Airport. “Just looking around” was his written comment.

Airports are used by area pilots for their own recreational flying activities. All of the airports are used for some aspect of flight training or maintaining flight proficiency.

Omak and Dallesport have been used as a base for aerobatic flight training. Omak and Dallesport are often used by pilots maintaining their instrument flight proficiency. Interviewees in Klickitat County told of how airports, public and private, have been used repeatedly as emergency landing sites for planes forced to land due to icing or bad weather in the Columbia River Gorge. Student pilots often land at the rural airports while completing their cross-country requirements. The study team observed a bright yellow Cessna 150 practicing touch and go landings at Omak during an interview there.

The airports support various other recreational activities. There was a private business jet at Dallesport when the study team visited that is used by one individual who flies to The Dalles/Hood River area to wind surf, and then returns to Sun Valley for skiing. Personnel at Dallesport told of several families who fly into Dallesport on route to vacation homes and others who fly in there to experience the wind surfing on the Columbia River. As related earlier, groups of fishers and hunters fly into Forks and Quillayute to take advantage of the world class fly fishing and hunting in the area. One study team member, well before joining the study team, flew into Forks with bicycles and spent a week staying at a Bed and Breakfast and touring the area on bicycle. Flights bringing hikers and back packers were reported at Omak and Twisp.

An important function that rural airports provide is that of enriching the quality of life for rural communities in small and subtle ways. The activities identified in this section, while not as dramatic as emergency medical flights or response to disasters, are important to the standard of living and quality of life experienced by rural community residents. Further, groups who organize to support the airport are one more asset important to strong communities.

THE BENEFITS TO RURAL COMMUNITIES ARE DERIVED

Rural airports and the aircraft that use them are not just about the act of flying. The benefits rural airports bring to their communities are primarily derived from flights that use the airports or from the availability of the airport for flights in the future. Yet, most of the benefits are overlooked for very natural reasons. The policy focus on general aviation airports, or of the flying public, is most often focused on the act of flying itself, the condition of runways, the types of airplanes that use the airports, noise and safety issues, and on airport upkeep costs. This is especially true for smaller airports, in part because of the lack of understanding of the general public about general aviation aircraft and how they are used. This point was made by one elected official in describing remarks he receives occasionally from non-flyers about the airport. Those comments often suggest that the airport is a place where “flyboys go out there to play.”

The fact that the benefits of the rural airport stays below the threshold (or radar screen) of recognition is facilitated by the fact that most discussions, and the primary interest of the pilot community, is likewise focused primarily on flying and their airplanes and the need for an airport or hanger space at an airport for their aircraft. Additionally, most flight activities at rural airports are not observed or do not make an impression on residents due to their infrequent or diffuse nature. If a person is not outside and within a mile or so of the airport when a plane is landing or taking off, most flights go completely unnoticed. Since there are not individuals at most rural airports on a round the clock basis, this means most operations at rural airports go unnoticed and are undocumented.

Very few individuals take an airline flight simply for the joy of flying, as is sometimes the case with a general aviation aircraft. The airline flight is a means to some other end - the need to be at a business meeting, desire to visit a vacation location, need to attend a funeral, etc. There is no confusion about why scheduled airlines fly. The need/demand for that airline seat is drawn from the many reasons individuals need to move from one location to another. In the language of transportation economics, this is referred to as the derived demand for transportation.

The benefits that rural airports bring to their communities are similarly derived from the reasons flights are or will be made that arrive or take off from the rural airport. During the early stages of this study, the study team was receiving a narrow range of responses to our questions about functions and benefits of rural airports. Individuals were responding to the questions we asked; we were just not asking the right questions. We were not asking for the reasons individuals knew flights had taken place. We were focusing in a sense on the "transport/airport function" itself rather than on the demand for transport. We needed to "begin with the end in mind" as it is the outcome of the flights that generates most of the benefits that rural communities draw from their airport. (Incidentally, this realization is one of the benefits of the qualitative research methodology.)

As a result of the narrow focus of early responses, the study team modified its interview approach. Additional questions were added that asked interviewees or members of focus groups to identify the reasons why aircraft had used their airport. This approach shifts the focus from the airplane itself, or of flight, and gives a far richer view of the benefits that rural airports bring to their communities. The study team did discover

plane owners who go fly simply for the joy of flying. The joy of flying is a strong theme of why people learn to fly. Their continued expression of the satisfaction with flying is likely, though, to obscure the underlying benefits that many of those flights bring.

The study team was impressed, even surprised, by the extent activities at each airport reached throughout all of the community. The interview and focus group process identified a wide range of reasons of why flights take place. These reasons show how rural airports impact almost every sector of the community and enrich the quality of life across in each of the communities.

The list that follows is a compilation of the reasons that interviewees in the three case study communities identified for flights of which they were aware. This list is certainly not comprehensive. While our list of interviewees is sufficient to draw strong conclusions about the benefits of rural airports, our list was not comprehensive of either pilots using the airports or of the citizens in each community.

PURPOSES OF FLIGHTS - A LISTING

Agriculture and Timber Related

- Agricultural spraying
- Field and crop inspections
- Flights to purchase farm equipment
- Searching for cattle
- Attend farm auctions
- Cattle buyer traveling weekly to cattle auction
- Farm to town flights for parts, banking, groceries

- Timber harvesting
- (use of helicopters to transport cedar bolts)
- Forest inspections

Aviation

- Aerobatic flight practice
- Air charter operations
- Aircraft maintenance
- Glider operations
- Pick up point for charter flights
- Pilot training
- Skydiving
- Photo mapping
- Instrument approach practices
- Flight training
- Flight proficiency practice
- Air shows
- Attend fly ins

Business Support

- Banking
- Apartment building owner flies in maintenance personnel
- Architects flown in

- Environmental and civil engineers flown in for construction projects
- Flights to business meetings
- Flights bringing lawyers with legal specialties necessary for contract negotiations
- Flights of newsgathering teams
- Flights transporting management or employees for business related flights
- power plants
- land fills
- large retail chains
- independently owned retail businesses
- tire stores
- timber products industry
- tourism businesses
- construction products business
- auto parts business
- machine tool business
- logging firms
- Flights to view replacement equipment for business
- Flights to inspect other stores in chain with new floor layouts and customer service options
- Flights to visit other manufacturing facilities
- Insurance companies bringing in adjustors and inspectors
- Parts flown in to meet time sensitive need (numerous incidents were referenced)
 - logging equipment parts,

- machine tools and replacement parts,
 - farm equipment parts,
 - port-a-potty pumps,
 - manufacturing equipment,
 - medical equipment
- Power line inspections
 - Real estate appraising
 - Real estate viewing
 - Small package service (Fed Ex, UPS, and special service)
 - Transport of cancelled checks
 - Flights bringing fisher and hunting parties to local guides
 - Tourist visits

Business Recruitment

- Prison recruitment team cross state visit to other prisons
- Flight of prison development team to Olympia seeking support for prison site
- Prospecting for wind energy sights
- Use for location of landfill
- Use in discovery of areas for wine making
- Bringing prospective buyer for business
- Business siting team visit to community

Emergency/Disaster Response/Fire Control

- Temporary base for lead aircraft for large aerial tankers
- Bringing fire control administrators to fire site
- Ferrying fire fighters in/out of area
- Helicopters carrying water
- Fire spotting
- Flights for Red Cross to view flood and other disaster damage
- Flights to maintain essential services when roads closed to floods and inclement weather
- Flights, which used the airports in an emergency as a place to wait out poor weather
- Refueling base for fire fighting, Coast Guard, medical airlift, and search and rescue aircraft
- Search and rescue (by commercial helicopters under contract, state police aircraft, air national guard aircraft, and by privately owned aircraft volunteered for S&R)
- Single Engine Air Tanker fire fighting flights
- Refueling stops for large aerial tankers ferrying between fires

Government

- Flights in and out to trials
- Transport city and county officials
- Flights monitoring area streams and recreation area use
- Flights participating in wildlife counts
- Visits by state and federal agency administrators

- Wildlife surveys
- Timber disease surveys
- Visits by Governors, Members of Congress

Health Care System

- Attend medical education conferences
- Commute to rural hospital by emergency room physician
- Emergency medical airlifts (numerous flights and reasons cited)
- Flights bringing in specialized medical equipment
- Flights delivering blood, tissue, or bone for transplant
- Hospital consultants for equipment installation, financing, and hospital design
- Movement of organs harvested from local donors
- Transport of local residents needing organ transplant
- Bringing in specialists, i.e. cardiologists, prosthesis technician
- Angel Flight - transport for patients needing treatment in urban centers
- Angel Flight - return patients home after med evac to urban treatment center

Policy Related

- Travel to energy hearings and listening sessions
- Flights to other issue related state and federal hearings
- Initial leg of travel to Washington, D.C. to petition Congress
- Flights to Olympia to petition State Legislature
- Visit by Governors

- Visits by Representatives
- Visits by Senators

Public Safety, Law Enforcement, National Defense

- Searching for criminal suspects
- State police highway patrol
- Military training
- Emergency services training, flight related and high speed driving for police
- Search and rescue

Local Quality Of Life

- Commute to work
- Scenic flights
- Flights to Father's Day and other annual Fly Ins (The fly ins in each case are activities that include a broad spectrum of the community)
- Flew 80 year old father to family reunion
- (Use for family reunions and family visits was a recurring theme.)
- Transport of grandchildren between divorced parents
- Flight to Christian men's meetings
- Flights following the Lewis and Clark Trail
- Flights for viewing the area for prospective pastors, physicians
- Flights to bring home accident victims
- Furniture purchase

- Introductory flights for youth
- Model airplane flight site
- Personal air transportation as choice over surface transportation
- Specialty puppy pick-up using business class jets by individuals from New York and Dallas
- Transport passengers to airports with scheduled airline service

Recreation

- Charters to skiing and wind surfing
- Charters to vacation homes
- Flights for hunting and fishing
- Use of aircraft for the recreation of flying
- Use of owner owned aircraft for flights to vacation homes
- Flights to go hiking or back packing

THE BENEFITS GENERATED BY RURAL AIRPORTS

Enhanced quality of life: Flights originating or terminating at the rural public access airports in Washington State represent a broad range of activities associated with rural airports. The list is surprisingly complete in the way it touches almost every sinew of rural community life. Flights utilizing rural airports serve the recreation, family, community, economic development, business and commerce, law enforcement, national defense, emergency and disaster response, medical and basic life support, policy access and development and other vital interests of rural communities. While difficult to

quantify, an over arching benefit of rural airports is that the quality of life in rural communities is enhanced by the rural airport that serves the community.

Access to needed professional services: Access is a critical benefit provided to rural communities by their airport. A theme that emerged from the study arises from the increasingly specialized nature and concentration of modern business, commerce, medicine, law, and government in urban areas. Rural communities cannot live in isolation and still hope to survive economically in today's world. To maintain their economic viability, rural communities must maintain access to the urban centers of banking, commerce, law, engineering, medicine, government and other specializations. Many businesses will not consider locating in a community if there is no airport.

There are several forms of access that are important. High-speed internet and communications access are critical. Air access is important in order to attend hearings, for contractual negotiations, solving engineering problems, etc. or for securing a part or piece of equipment needed for local economic activities. In a period when time is often our scarcest commodity, the use of aircraft to transport individuals is critical.

Improved quality of health care: Improved quality of health care is a benefit to rural residents made possible by rural airports. Air ambulance service from rural airports has become routine and in every case the number of such flights was much higher than the estimate of any one individual in this study. The routine nature of these flights should not obscure the life or death nature of the flight for the patients being transported. For seriously injured individuals with life threatening injuries, rapid movement to a facility with the personnel and equipment to treat their injuries is a matter of life and death.

Transportation of bone, tissue and blood to rural communities are another important function where airports play a role.

All complex head injuries and serious burn victims are taken to Seattle or Portland where the only medical facilities equipped to handle complex injuries exist. Since most of the rural hospitals in Washington are Trauma Service Level IV, patients requiring treatment at a Level I (most complex injuries) or a Level II hospital are transported to those facilities, when possible, by air. Air ambulance service to and from rural airports is provided by both rotary wing and fixed wing aircraft. In some communities, hospitals have their own heliports, yet the airport is a backup facility for helicopters during adverse weather and other situations when the heliport is unavailable. In other communities the airport is used by both helicopters and fixed wing medical evacuation aircraft.

Rural airports are an important means of access to the medical specialization found in metro centers. The high cost of new medical technology, the demand for medical specialization, and the need for a patient base to pay for these factors, coupled with the difficulty that rural hospitals have in recruiting and keeping personnel, has created a situation in which rural hospitals, while providing an excellent level of care within the framework of their equipment and the training of their personnel, must send many patients on to hospitals that can offer the specialists and equipment required for increasingly specialized treatment.

Twenty years ago, the mortality rate for heart attack patients was higher than 20 percent. Today that rate is around 5 percent. Key to this improvement is moving the patients quickly to a medical center with the appropriate specialists and equipment -

specialists and equipment found almost exclusively in urban centers. Over 50% of the heart attack patients who die from their attack die before they reach the hospital. As one cardiologist said, "Time is tissue" meaning the sooner treatment can be provided the less damage to the heart. The timely movement of heart patients from most rural communities requires the use of rotary or fixed wing aircraft.

To many observers, the increasing use of helicopters in medical airlift service seems to argue against the importance of an airport with a runway. The study team did not find the same conclusion to be held by those operating the airlift services. They would like many of the existing airports to be improved to handle their fixed wing aircraft or to have improved instrument approach equipment. Having the option of using either the helicopter or a fixed wing aircraft increases the probability that they can pick up and transport a passenger regardless of the competing demand for their helicopters or because of inclement weather. Fixed wing aircraft can operate with lower weather minimums than the helicopters presently in use in eastern Washington. There are also times when the patient needs to be transported to a facility outside the operating range of the helicopter. Not having an airport provides a serious impediment to quality medical care for rural residents. The present trends of concentration of specialization in urban centers are not expected to turn around any time soon.

Effective and timely response to disasters, emergencies and for fire control: Rural airports are key facilities in disaster and emergency response. Every airport in the study area had been used, some on a regular basis, for support of local, state, and federal emergency response or fire control activities. Airports had been used as a base of support for firefighting activities, the location for single engine air tankers and for training

activities for emergency response. Aircraft using rural airports have been used for basic transportation when area roads were unusable due to flood damage, ice or snow, or avalanche. Additionally, area aircraft owners had provided volunteer support for search and rescue as well as assisting local law enforcement agencies in finding and apprehending offenders.

Fixed wing and rotary wing aircraft both play key roles in these activities. The need for the airport for fixed wing aircraft is self-evident. Airports are also critical in the use of helicopters in disaster and emergency response as well. Airports are critical since they are places where flight and landing activities are approved, where arrival and departure procedures are known, and where there are parking areas for the support vehicles and personnel necessary for the aircraft. If there is an approved instrument approach procedure for use in instrument weather conditions, those are only available at airports. Finally, at public access airports, no permission is necessary to immediately use the airport for these activities.

Support for local businesses including agriculture and timber businesses: The support of local business is a benefit greater than what appears on the surface. Use of aircraft for functions related to local businesses is one of the highest uses of rural airports. The most often thought of business flight activities at rural airports are those associated with agriculture and logging, but these were not the predominate business use for rural airports in the study communities. They were important but not the most numerous.

It is most often a time critical situation when the aircraft is used. Time is critical in many different ways. When a piece of equipment breaks down, whole operations can shut down and the more down time, the less income. Airplanes using rural airports are

used regularly to bring time critical parts to local businesses. Several small package services use the Omak airport. Over time, virtually every resident or business in the area will either take delivery of a package or send a package on one of those services.

The effective use of specialized professional time is another critical time issue facilitated by the use of aircraft. Many consultants, whether engineers, architects, medical specialists or lawyers, are located some distance away from the rural community. Time is the critical commodity in today's world. The use of rural airports by aircraft transported consultants brought into advise on local projects, such as a new dialysis center or a gas fueled energy plant, allows those individuals to service rural communities and yet maintain their urban practice. The interview process identified several companies who regularly fly personnel between locations using the rural airports in the study area.

Improved ability to petition government: The ability for rural residents to participate in the critical policy forums is a benefit of rural airports. Unfortunately, most hearings and listening sessions are not held nearby to rural communities. Local residents in the case study communities have flown out to federal and state hearings and listening sessions on energy, wildlife, water and judiciary matters using rural airports as their departure point. Rural residents have used their airport as a "portal" to Olympia and to Washington, D.C. for visits to the Washington Sate Legislature and Congress. Governors, Senators, Representatives, and state and federal administrators have flown into rural communities collecting information, touring disasters or viewing critical projects. Without the ability to land near the community, most of these visits would not take place. Time is the critical commodity for elected officials as well as for federal and state agency administrators.

Community Life Enriched: Another benefit of rural airports is that the activities associated with those airports enrich daily community life in many different ways. A sample of those activities includes using locally based aircraft for family reunions, to transport grandchildren between divorced parents, to show pastoral candidates and physicians the community, to provide scenic flights, to bring an injured neighbor back from a distant car accident, to provide rides for area children and many other activities. Airplanes are used for recreation themselves and to take local residents or bring visitors to recreation sites. Rural airports support a wide range of aviation related activities from basic pilot training to maintaining instrument flight proficiency.

Airports in several communities were one part of making that community a stronger community. Community development literature has identified that communities are strengthened by associations of individuals or organizations who take on activities in and for the community. In each case, having the airport as a focus of a community activity is a plus for that community. At several of the airports, fly ins are held and the community is invited and comes to participate. The fly ins are hosted by a local volunteer group, often a pilots' group, but sometimes the area Lions or other civic organization. In several cases, a group of pilots volunteer to maintain the airport, often functioning in an official capacity, without pay, as airport manager and maintenance crew.

Critical asset for economic development: An additional benefit is that rural airports are a critical asset for economic development. Without an airport the probability that economic growth will occur in most rural communities is very low. Many firms, when looking for an expansion or relocation site, require that the community have an

airport. Rural airports provide both a focus and a support for economic development activities. Many rural airports offer reasonably priced space for business expansion, space that is in addition to that necessary for runways, taxiways, and related facilities. Rural airports also provide the access to urban centers where banking, consultants, suppliers, and the myriad of necessary professional services and distribution centers are located.

An improved sense of well-being: A surprising benefit of rural airports is the improved sense of well being they bring to many of the residents in rural communities. This was first surfaced by a non-flying individual in Goldendale who, while discussing the airport, spoke of how "The rotating beacon at the airport is a sign of security and the airport makes Goldendale more attractive." Similar sentiments were expressed by residents in Forks and the Omak areas as well. As one person in Omak said, "Our airport is a sign that we are a progressive community; we are up to date."

In Forks, the Quillayute Airport has become the focus of hope for the future of their community. The role of the airport as a symbol of hope was expressed by several Forks interviewees but was most clearly stated by Nedra Reed, a Forks City Council member. "The airport is a symbol of hope for our future, a star to which we are hitching our wagon."

SUMMARY AND CONCLUSIONS:

There were recurring themes across communities, albeit expressed differently or with varying emphasis. The feeling was strongly expressed in each community that the airport serving that community was important today and is a critical part of that

community's future. Elected officials in each area independently volunteered that the airports in their communities are part of the basic infrastructure that is required for the health, welfare, safety, and economic well being of the residents living in their communities, conclusions that are supported by this study.

It is clear that rural airports are fully integrated into the life of their communities. Flights originating or arriving at the rural public access airports in Washington State touch virtually every aspect of life in the communities they serve. There is a broad range of activities associated with rural airports. Pilots and other study participants were asked to identify the reasons why flights had originated and arrived at their airports. The list of reasons for flights using the rural airports in the study areas is long. A brief sampling of that list includes emergency medical flights, family reunions, search and rescue, real estate appraisal, military training, searching for law offenders, emergency parts, small package service, news gathering, flood relief, fire fighting, skiing, wind surfing, using a flight over the community to convince a pastoral candidate to choose the community, flying to public hearings, flying a local committee out to review prison operations and to Olympia to compete for location of a prison and bringing in specialized legal consultants and engineers. The list is surprisingly complete in the way it touches almost every sinew of rural community life.

The fact that rural airports are integrated into their communities is often missed because as a woman in Omak observed, "Small airports are often invisible until you need them." This interviewee's life and the life of her unborn child had been saved because of a late night emergency flight from Omak to Spokane.

Rural airports are used to support local businesses to a surprising degree. In addition to airport-based businesses, aircraft operating from the airports in the study areas are used for a wide range of non-airport based business purposes. A cattle buyer flies weekly to Dallesport for the cattle sale. Outlying farmers and ranchers fly into "town" to shop, pick up parts, or to visit with their accountant, banker or lawyer. Local aircraft are used to fly to purchase equipment, to do field and crop inspections, to search for cattle and to attend farm auctions.

An apartment owner from the Portland area, flies in his maintenance personnel from Portland to Goldendale to service an apartment complex in Goldendale. Local real estate firms take prospective customers to view properties. Local aircraft are used for real estate appraisal. Cancelled checks are picked up. An auto parts storeowner uses his plane to fly to business meetings, to check out other stores, and occasionally to fill a parts order. Local airports are used to deliver time sensitive parts, often to repair a highly needed machine. Several firms with businesses in the study communities use the airports to transport employees between chain store locations or to headquarters for leadership meetings.

An emerging theme of the study arises from the increasingly specialized nature of modern business, commerce, medicine, law, and government. Rural communities cannot live in isolation and hope to survive economically in today's world. To maintain their economic viability, rural communities must maintain access to the urban centers of banking, commerce, law, engineering, medicine, and other specializations. It is recognized that rural communities must have high-speed internet and communications access. The use of the internet, including for high-speed video conferencing, is a key

method of access and is being used successfully in each community we visited.

However, there are still many situations that require the physical presence of key individuals in hearings, contractual negotiations, solving engineering problems, etc. or for securing a part or piece of equipment needed for local economic activities. Airports are a key means of providing this access.

Rural airports are an important means of access to the specialization found in metro centers. The most prominent example of this phenomena is found in the medical sector. The high cost of new medical technology, the demand for medical specialization and the need for a patient base to pay for these factors, coupled with the difficulty that rural hospitals have in recruiting and keeping personnel, has created a situation in which rural hospitals, while providing an excellent level of care within the framework of their equipment and the training of their personnel, must send many patients on to hospitals which can offer the specialists and equipment required for increasingly specialized treatment.

Twenty years ago, the mortality rate for heart attack patients was higher than 20 percent. Today that rate is around 5 percent if the patient is moved quickly to a medical center with the appropriate specialists and equipment - specialists and equipment found almost exclusively in urban centers. As one cardiologist said, "Time is tissue" meaning the sooner treatment can be provided the less damage to the heart. The timely movement of heart patients from most rural communities requires the use of rotary or fixed wing aircraft.

Air ambulance service from rural airports has become routine and in every case the number of missions was much higher than the estimate of any one individual in this

study. The routine nature of these flights should not obscure the life or death nature of the flight for the patients being transported by many of these flights. For seriously injured individuals with life threatening injuries, rapid movement to a facility with the personnel and equipment to treat their injuries is a matter of life and death, facilities located in urban areas.

Air ambulance service to and from rural airports is provided by both rotary wing and fixed wing aircraft. In some communities, hospitals have their own heliports, yet the airport is a backup facility for helicopters during adverse weather and other situations when the heliport is unavailable. To many observers, the increasing use of helicopters in medical airlift service seems to argue against the importance of an airport with a runway. The study team did not find the same conclusion to be held by those operating the airlift services. They would like many of the existing airports to be improved to handle their fixed wing aircraft. Having the option of using either the helicopter or a fixed wing aircraft increases the probability that they can pick up and transport a passenger regardless of the demand for their helicopters or because of inclement weather. There are also times in which the patient needs to be transported to a facility outside the operating range of the helicopter. Not having an airport provides a serious impediment to quality medical care for rural residents and will do so well into the 21st Century.

Another type of medical flight becoming increasingly important to rural communities is Angel Flights. Angel flights are performed by volunteer pilots who provide an airplane and their services without charge to transport patients to treatment, or from a treatment center home, who are medically stable, live where there is no scheduled airline service, or are unable to afford transportation. The majority of patients

transported by Angel Flight are children, many to Children's Hospital in Seattle or the Shriners' Hospital in Spokane. The number of Angel Flights in Washington State has grown from 50 three years ago to over 200 this past year. Many of their flight originate or arrive at a rural airport.

Rural airports are also important for access to other sectors of the economy. Legal consultants, civil and environmental engineers, medical specialists, and others were identified by study participants as having used the area airports for business activities in the study communities. Access is available via surface transportation, but in a period when "time is the commodity", the availability of the air transport alternative, for highly paid specialists, is sometimes the difference in business being done or not. Unless existing trends are reversed in a way that isn't apparent to the study team, rural airports as one means of access to urban centers will become increasingly important to rural economic activities.

Airports are at the center of economic development activities in each study area. Rural communities, previously dependent on mining, forestry, and agriculture, have all experienced a decline in real income within their geographic regions. Each community is working hard to build their economic base. Each community has focused on having high-speed internet access. Each community has also recognized the critical importance of airports to economic development, either as a focus of development activity or as a necessary infrastructure item required for further economic expansion. In addition to the importance placed on the airport as part of their economic development strategy, residents as well as leaders expressed the belief that their airport was a critical part of their image of their community, i.e. to have an airport meant they somehow would be

able to compete in the future, and that having an airport was critical to their economic future – a symbol of hope.

Companies seeking to locate in an area, whether being actively recruited or not, often use a corporate recruiting service to check out potential business locations. Communities often do not know they are on the “screen” of such companies. A checklist of necessary attributes is utilized for each community being scrutinized and certain boxes must be checked. The airport box is one of those checks that must be there. Whether the company plans on using the airport regularly or simply wants the option of having it available if needed, the airport is required before most businesses will consider locating in an area.

Rural airports are key facilities in disaster and emergency response. Every airport in the study area had been used, some on a regular basis, for support of local, state, and federal emergency response activities. Airports had been used as a base of support for firefighting activities, the location for single engine air tankers, for training activities for emergency response, and for basic transportation when area roads were unusable due to flood damage, ice or snow, avalanche, or other reasons. Additionally, area aircraft owners had provided volunteer support for search and rescue as well as assisting local law enforcement agencies in finding and apprehending offenders. While the wide use of helicopters may lead some to believe airports are becoming of less importance to these activities, airports are critical since they are places where flight and landing activities are approved, where arrival and departure procedures are known, and where there are parking areas for the support vehicles and personnel necessary for the aircraft. Finally, at public

access airports, no permission is necessary to immediately use the airport for these activities.

Area airports were also being used to support state fish and game officials through stream surveillance and animal counts. While it is easy to focus on the dramatic, the saving of a life through air ambulance service, suppressing a fire, or helping apprehend a criminal, the study identified many other ways that airports and the activities that happen there are critical to the quality of life experienced by rural residents.

Airplanes are used for recreation; in fact, the often-heard comment by pilots was that they believed many in their community-felt airports were for the rich fly boys and their toys. No doubt, airplanes in certain cases are expensive toys, but the study identified a much higher level of activity associated with the life of the community. A sample of those activities includes using locally based aircraft for family reunions, transporting grandchildren between divorced parents, bringing pastoral candidates to the community, picking up critical parts needed for a business, supporting real estate business, providing rides for area children, and many other activities. In several cases, a group of pilots volunteer to maintain the airport, often functioning in an official capacity, without pay, as airport manager and maintenance crew.

Airports in several communities were one part of making that community a stronger community. Community development literature has identified that communities are strengthened by associations of individuals or organizations who take on activities in and for the community. In each case, having the airport as a focus of a community activity is a plus for that community.

At several of the airports, fly ins are held and the community is invited and comes to participate. The fly ins are hosted by a local volunteer group, often a pilots group, but sometimes the area Lions or other civic organization.

The fact that the benefits of rural airports lie just below the threshold of recognition in many rural communities can be considered a normal consequence of the rural nature of the airports, the diffuse nature of flights using rural airports and the lack of understanding of how small planes are used. Unfortunately, the focus of the general aviation community itself on the airplane itself, flying as an activity in and of itself, and as the airport as real estate to support their flying activities results a low profile for the airport to other citizens.

The rural nature of airports means that on any given day the chances that someone will observe a flight to or from a local airport is small. Even if observed, understanding why the flight is being taken is not apparent. The nature of general aviation aircraft is that unless you are within a fairly short distance of the airport and are looking for airplanes, you will likely miss the flight. The diffuse nature of flights means that flights might occur at any time of day or night. They are not frequent and even 15 flights in a day will seem like very low use. Additionally, flights to or from rural airports are not documented.

Even within the general aviation community, much of the focus is often on the condition of the airport, safety zones, needed instrument equipment, and on aircraft and flying. Contrast this to other uses where the airplane is solely to transport people to attend their meetings, visit relatives, attend funerals, conduct business, etc. A high percentage of the general public has flown with an airline, they understand the benefit of

that airplane and the airport it uses. The same is not true for their involvement in general aviation aircraft; little is understood about how a small aircraft is used.

Finally, the pilots and the aircraft owners who use rural airports may be inadvertently helping to keep the benefits of rural airports below the threshold of recognition by their love of flying and for their aircraft. Most people who know a pilot are aware of how fervent most are about their flying. It is the love of flying that brought most of them to learn to fly and to continue to do so. What gets lost though are the many reasons they and other pilots use their airplanes that benefit the community. Since most commercial aircraft that use the rural airports are not based there, local residents very seldom come in contact with the personnel who fly and support those aircraft. The net result is that the benefits of rural airports are recognized.

It is this study's conclusions that the benefits that airports bring to rural communities are many, varied and critical. Rural airports improve the quality of life in rural communities. The individual benefits of rural airports range from improving the quality of health care, supporting local businesses, providing critical emergency and disaster response, strengthening community, providing opportunities for recreation, military training, economic development and much more. Airports are in several cases a symbol of hope for rural communities fighting for their economic life. It is difficult to quantify the value of these benefits, yet they are real, even if not always noticed, to the people who live and work in rural communities.

Having a constrained or diminished airport would decrease the quality of health care, decrease the odds of having a viable economic future, reduce the ability of local, state and federal agencies to respond to disasters and emergencies, lower the viability of

rural businesses and would lower the image these communities have of themselves. A workbook is being developed from this study, derived specifically to aid policy makers to understand the benefits of their rural airports.

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