



Oregon Aviation Industries



DRAFT whitepaper

7/18/2016 Updated several times with inputs from many sources.
Latest update 12/11/2016

ORAVI Rural Air Service - Overview and Options

Since passage of House Bill 2075 in the Oregon 2015 Legislature, Oregon Aviation Industries has been investigating options and possibilities for implementation of rural air service in Oregon. We have received inputs and ideas from our membership, our board of directors, from Oregon air service operators, from operators in other sections of the country and from consultants and industry leaders. ORAVI is focused on analyzing models that would meet the intent of HB2075, which is to serve rural Oregon communities that currently do not have passenger air service from their local airports.

Executive Summary

The current model of rural air service is antique. It cannot operate using a scaled down version of major city airliner service. In the age of internet, Big Data, sophisticated scheduling algorithms and sophisticated smaller aircraft, it is possible for a major disruptive method to be deployed to serve rural communities with air service.

Our premise is that a sustainable rural air service must be based on the following criteria:

1. Right-sized aircraft that match the air travel demand in small communities.
2. Subsidies per-seat to keep the cost of rural air travel affordable.
3. Dynamic Doodle-type scheduling to increase individual flight loads and reduce costs.
4. Utilize Oregon's existing and new FAA approved Part 135 air operators.
5. Airport to airport, no TSA. Rapid travel with very little overhead time.
6. Flexibility – on-demand and limited schedules
7. Strong promotion, advertising and sponsorship at the served communities
8. Begin with 1 to 3 key communities and expand as the model is perfected

Background

The state of Oregon covers a large geographic area of 98,466 square miles with many mountain ranges and rivers that impede the speed and efficiency of road travel. Due to the terrain and distance, driving across the State can take 6 to 8 hours or more to travel 300 to 400 miles across the state.

Since deregulation of the airlines in 1978 the primary passenger travel mode within Oregon has been by automobile. Two major freeways serve a portion of the state but the majority of towns are served by roads that twist, turn, climb and descend to fit within the irregular terrain of the state.

As an example of road versus air travel, a 160 mile trip from Portland to Sisters Oregon by car takes 3 hours. By small aircraft the time is less than one hour. Driving from Salem to Baker City takes 6 hours versus 2 hours by a small 4 seat aircraft. And, travel through metro areas, even on freeways, is typically impeded by heavy traffic, and often gridlock, adding considerable time to the trip.

Major airlines provide air service from 4 Oregon hub airports: Portland, Eugene, Redmond and Medford. There is also commuter service from 3 Oregon airports to Portland: Pendleton, North Bend and Klamath Falls. The rest of Oregon's 90 airports and surrounding communities are unserved by passenger air service.

Rural | Urban Divide

It would be highly beneficial for economic and community development statewide to implement air service that connects rural communities to urban areas. And, it would be equally beneficial to provide intra-state rural to rural community air service. To address this issue, in 2014 ORAVI formed an aviation fuel tax committee and submitted proposed legislation that would assist with aviation funding including rural air service assistance.

Aviation fuel tax bill HB2075 was lobbied by Oregon Aviation Industries and many aviation industry leaders gave positive testimony at committee hearings. It was passed by the Oregon 2015 legislature with a 100% affirmative vote by Revenue and Ways and Means Committees and by a 90% majority on the floor. 25% of the funds, amounting to \$5 Million over the next 6 years, are targeted to assist rural air service. Rural air service potential was a significant reason that the bill received tremendous bipartisan support. It can better connect the state and it can provide some relief in reducing road travel.

Existing Models versus radical change

All former models of air service in Oregon that attempted to serve rural communities have failed. We cannot try the same unsuccessful methods again, there needs to be a new and different approach or it will be money wasted down a rat hole. It is beneficial to have aviation fuel tax funding to help make rural air service affordable for passengers, but we cannot try to bring back to life those models that have died in the past. We need radical out-of-the-box thinking and dramatic change. Think of previous models as Univac, IBM, Cray, DEC who were stuck in their traditional models vs: radical game-changers such as Apple, Google, Facebook, Amazon, Uber and Tesla. Their initial ideas were deemed impossible. We need initial ideas that seem impossible, and then, like rough pieces of wood being converted into a fine piece of furniture, sand them, smooth them and varnish them into the possible, probable and successful.

Extensive market studies did not launch game-changer companies. Breakthrough successes are paradigm shifts. Conceive, test, try it, fix it, develop a model that works in a limited scope and then streamline it and deploy to other locations that may find it of value, with localization as needed.

Current types of FAA authorized commercial passenger air service

Part 121- Major airlines for mass travel in our hub and spoke system to major cities. TSA required.

Part 121- Shuttle service from smaller towns to major airports, usually TSA

Part 135- Shuttle service from smaller towns to major airports – limited schedule, not always TSA

Part 135- On-Demand charter of corporate sized piston, turbine and jet aircraft. Very expensive

Part 135- Scheduled Rural. Up to 4 times per week by the same operator / same location. No TSA

Part 135- On-demand service to and to from qualified airports. Smaller aircraft, no TSA

Oregon Airports

There are 97 Public use airports in Oregon and most of them are located in rural communities.

However, scheduled rural passenger air service is currently available in only 3 rural communities and they fly only to the Portland (PDX) airport.

Pendleton <-> Portland - served by Boutique Air (Previous SeaPort Airlines)

North Bend <-> Portland -served by PenAir

Klamath Falls<->Portland -served by PenAir

Residents in most rural Oregon towns must drive from 2 to 3 hours to reach a major commercial airport that provides connections to national and international locations. In rural communities, local airports are often within 5 miles of a resident's home.

There is no intra-state rural air service to fly passengers from one rural Oregon location to another rural Oregon location. Road travel via car, truck or bus is the only practical alternative. There are more than 15 air charter facilities in multiple airports across the state with 25 aircraft total, but they do not fly on a scheduled basis and the costs can range from \$2,000 to \$9,000 to fly from one side of the state to the other one-way. Surveys have indicated that the price most residents are willing to pay to fly across the state ranges from \$200 to \$300 - one way.

Since airline deregulation in October 1978, all attempts at rural air service in Oregon have failed.

Without subsidies, they have not been economically feasible. The most recent attempt was made by SeaPort Airlines who initially operated from the Flightcraft FBO at PDX to Seattle Boeing Field BFI, then to Pendleton and later to Astoria, Newport and North Bend with plans for expansion to Salem and possibly other towns. After five years their only service that remained was the PDX <->Pendleton route which is funded by the Essential Air Service (EAS) federal subsidy. SeaPort went Chapter 7 and ceased operations to Pendleton on September 20, 2016. It remains to be seen if the replacement airline Boutique Air will be successful on the Portland<->Pendleton route.

As soon as subsidies went away on the Oregon routes served by SeaPort they pulled out while chasing subsidies in other states. SeaPort originally flew 9 seat Pilatus PC-12 pressurized single engine turbo prop aircraft that operated at 16,000 feet and flew at 250 knots and offered an airline-type of passenger

experience. They later changed to 9 seat non-pressurized Cessna 208 Caravan's with a speed of 200 knots and altitudes of less than 15,000 feet. These cost less and get the job done, but with much less passenger appeal.

The Portland<-> Pendleton route has been in jeopardy several times of continuing their EAS grant which has now reached more than \$2 million annually. They typically fill 4 seats of the 9 available. And, Pendleton officials had not been pleased with the level of SeaPort customer relations and lack of promotion of the service. Accordingly, on August 17, 2016 Pendleton City Council voted to replace SeaPort with Boutique Air. Boutique flies PC-12s, a return to a more airline-type environment in the cabin, pressurized, higher altitudes and faster speeds. Boutique has received an EAS subsidy of \$2.27M per year to operate this route. Pendleton is without passenger air service until Boutique Air begins service on or before 1/1/2017.

Air service at Oregon's 4 major hub airports and the 3 commuter shuttle airports needs to be continued. There could be some fuel tax money allocated to the smaller existing commuter airports if they reach a point of failure in the future.

However, this whitepaper's attention is on serving a few of the other 241 towns in Oregon. Many of these towns are close to one of the state's other 90 public use airports, the majority of which are in rural communities and not far from local downtowns.

Assumptions based on road travel time, city size and community demand.

Unserved towns where air service might work include those that fit the following criteria.

- 1-Two or more hours of driving time to a major airport in typical traffic conditions.
- 2-Towns without major freeway access
- 3- A population area of 10,000 to 50,000 people within a 50 mile radius.
- 4- A suitable instrument meteorological conditions capable airport
- 5- Community support where want or need (and therefore demand) for air travel is high
- 6- Communities who are willing to take a leadership position in pursuing rural air service

These criteria support consideration of the following Oregon communities:

- Newport
- John Day
- Burns
- Baker City
- La Grande
- Lakeview
- Roseburg
- Joseph
- Astoria
- Brookings
- Salem

Salem is considered for inclusion in an “intra-state” air service system due to the demand for travel to and from the Capitol (particularly during legislative sessions) and with the high statewide travel by State agencies. Driving two days across state for a one day (or 2 hour meeting) is costly and unproductive. Flying can get the meeting done in a single day, saving per diem, overnight and meal expenses, and most importantly, it can save the wasted time accomplishing nothing while driving in traffic.

The initial rural air focus in early 2016 was on John Day, Burns, La Grande and Baker City. More recently, Newport has shown interest. Meetings have been held by Oregon Department of Aviation (ODA) and ORAVI with John Day officials who have shown some interest. Burns has expressed some interest and involvement. La Grande has expressed mixed interest. Baker City has not currently expressed much interest, although they did apply for a SCASD federal grant (which was not funded) in 2009 to extend Pendleton’s air service to Baker City. The Newport airport manager and the city council have expressed strong interest in air service and they have recently spoken to passenger aircraft operators. Newport’s high levels of tourism, their NOAA facility, ocean research, fishing and academic institutions are likely drivers for air service utilization.

Aircraft types that would fit rural air service in Oregon

9 passenger seats or less

Twin engine prop: Cheyenne, KingAir, Aero Commander, Baron, Navajo, Cessna 300 and 400 series)

Single engine turboprop: Pilatus PC-12, Piper Malibu Meridian, TBM 800, Cessna Caravan 208

Single engine 4 and 6 seat aircraft: Beech A-36, Cherokee 6, Cirrus 22 that meet Part 135 requirements.

IFR (certified flight into known icing conditions would be desirable for scheduled services)

Operations

No TSA. Rural cannot afford the cost, overhead and logistics.

FBO to FBO (or to non-sterile designated areas at TSA airports)

Lounge facilities exist at Fixed Base Operators FBOs

Part 135 - on demand flight requests

Part 135 – scheduled-can publish a schedule with a maximum of 4 days/week of service per location

Service types

Scheduled – up to 4 flights per city per week are permitted under Part 135 by the FAA.

On-Demand-Part 135. Any location, flexible scheduling options

On Demand – Part 135 operators exist, but are very expensive. These include local FBOs and charter brokers such as www.charterhub.com and www.flyotto.com

Published cost

As with Expedia, Travelocity, Uber, Lyft, the cost must be displayed for specific flight times and for on-demand requests, with options for lower costs based on days, times and locations. And, in addition, be subject to change if passenger loads change, ideally lower.

Ground transportation considerations

Dedicated airport cars

Rental car companies

Uber / Lyft type car service

Local bus and taxi services

Travel Bank

One financial solution to lower ticket costs is a Travel Bank which would be funded from various sources to spread the risk/reward. Air service operators that have relied solely on subsidies per-flight such as Essential Air Service (EAS) to operate have failed in the past. SeaPort's chapter 7 is a recent example. Payment per flight subsidies (fee for service) is an inherently bad structure as there is no incentive to increase passenger loads. And if there is no risk/investment "skin in the game" from the operator it becomes corporate welfare and attracts the wrong type of operator.

A Travel Bank could be funded by the following sources:

- HB2075 Oregon Department of Aviation funding from aviation fuel tax
 - Air service operator via discounted pricing
 - Air service operator offering services at a short-term loss initially
 - Air service operator advertising and promotion
 - Local community bond measures
 - Local community fund raising, auctions, promotions
 - Local community taxes, business contributions
 - Discounts for fuel from local FBOs
 - Prepaid tickets offered at a discount
 - Prepaid coupons
 - Donations, annuities, philanthropy
 - Contracts with business, medical and government institutions that guarantee ridership levels
-

The Travel Bank funds would be used to subsidize the individual ticket cost for a flight. Some funding would be used for promotion. The travel bank subsidy would make the ticket price affordable for the individual passenger and it would access budgeted risk-shared funds to increase passenger utilization and thus move toward a profitable operation, or at least one with less subsidy needed over time.

Alternatives service types to consider

Extend the existing PDX – PDT Service

Extend Boutique Air Pendleton to other rural locations. Pendleton airport / economic development manager Steve Chrisman has asked Boutique if they are interested in this possibility and he is waiting for a response. As previously stated, a SCASD grant request (unsuccessful) proposed extension of the Pendleton shuttle to eastern Oregon, and it would be worth a try again if HB2075 funding could assist.

Pros Leverage off of the existing PDX – PDT EAS grant of \$2+ Million

Cons Boutique may not be interested, low ridership.
Plane may be too large/expensive for smaller markets.

Funding large airport operations to subsidize flights from outlying towns

Pros Might bring in more passengers for their flights. Mini hub/spoke system

Cons Funds might be depleted at the expense of other outlying communities
Does not address the rural to rural intra-state need

Part 135 On Demand

Pros Services are currently available at many airports across the state

Cons Very high cost, would need major subsidies. Typical charter aircraft are very expensive to operate and may be too large for most rural community ridership. Unrealistic at \$2,000+ per flight.

On demand model with General Aviation private planes under FAA Part 91

Pros Online scheduling and payment, low cost, many aircraft.

Cons FAA would not permit revenue flights under Part 91. Would have to be Part 135.

Create existing or new Part 135 air service

Provide support to get an interested Part 135 operator to create a service with multiple aircraft and locations dedicated to providing a rural air network. Mini airline.

Pros Sounds good on paper. Would be ideal if it worked. Easy to brand.

Cons These models have typically used expensive aircraft such as Cessna 400 series twins or King Airs. Due to the high overhead costs, these models always failed in the past. Expensive to purchase, expensive to operate, with one company absorbing all overhead. And, difficult to fill the many seats. Aircraft were too large for small rural community pax demand.

Horizon, PenAir or other commuter airlines

Pros Currently operational

Cons Aircraft are too large for rural, cannot fill enough seats in a 30 seat aircraft. No interest by them.

Establish a new State-owned rural commuter air service network

State invests in fleet, dedicated to one or more Oregon-based Part 135 certificate holders.

Partner with FBOs in served communities for pilot's, fuel, passenger service, car rental, etc.

Local non-profits create "membership" programs which provide foundation for service viability for that community
Circuit-rider network based on membership and seat-demand in communities, with service on a less-than daily basis (e.g. John Day - PDX on Monday & Thursday, Newport - PDX on Tuesday & Friday)

Ongoing State (HB 2075) operating support pro rata with community membership and seat-demand

Pro State-backed plans and funding could provide sustainability

Con May not be able to get political support. Many prefer private businesses for such services.

Contracted air service with major organizations

One marketing effort that could be utilized by a rural air carrier is to contract with large organizations who need to move people around the state on a regular basis. For example, medical centers,

universities, law enforcement, state prisons, local, regional and national government agencies, major employers, contractors, service organizations. These would amount to pre-paid tickets or an agreement to pay down payment and a fee overtime to fund the tickets. This would provide a sustainable base from which to add other passengers to locations where they fly.

State contracts with Part 135 operators

An RFP could be issued by the State Department of Aviation to Part 135 operators to be established as a Rural Air Oregon network. A maximum of 3 air service operators would be selected and contracted. Cities would be selected for service based on time/distance, interest, community funding matches and potential for success based on estimated ridership levels. Ticket prices are fixed by the Department of Aviation for each route. Tickets are subsidized based on a travel bank established for each served city. The travel bank would be funded by HB2075 plus community funding. Based on the number of tickets projected for each location served by each of the three operators, a subsidy estimate would be published. The subsidy is estimated to be \$200,000 per year per operator and it would be paid based monthly on the number of seats flown/tickets sold.

Pros The operators would have a projected revenue forecast and could deploy assets accordingly
With 3 operators, if any one or two failed there would be a backup operator
State regulated ticket prices would ensure profitable operations, thus provide sustainability.

Cons:

Direct state involvement may be discouraged Oregon legislators
Antitrust liability and/or other operators complained about stifling free trade
Requires estimated ticket sales/seat numbers to be reached.

Technology – online systems and aircraft

As previously stated, all attempts at implementing Oregon rural air service since airline deregulation have failed. Lessons learned: we can't keep doing the same model over again. There has to be a different model. The one major differential today versus 10, 20 and 30 years ago is technology. By using online technology to provide supply and demand matches, resource sharing, instant information and communications we may be able to construct a new generation model that is completely different from past methods. Past methods such as Part 135 charter are too expensive for wide use by average citizens. Heavily subsidized commuter airline schedules have not been sustainable. SkyTaxi models have not been economically viable.

An online system where available aircraft resources are listed, and the ability to capture a flight and to book it for a given date and pay online could be the first step. Then, an optimization supply/demand model that allows resource sharing ie: a passenger may search for flights to a chosen city and be flexible on the dates. A Doodle-type scheduling capability could show others that are interested in traveling to the same location. Very often, schedules can be matched to find the day with the maximum seat load that will produce the minimum cost per seat. For example is 4 people wanted to travel from Salem to Pendleton sometime in a given week, they may be able to arrange their schedules so that they could all fly the route on the same day at the same time. Sophisticated software can make it possible to easily

match the passengers with an available aircraft and pilot and make the flight at a cost of less than \$200 per seat.

The other side of technology is the aircraft. The FAA permits Part 135 IFR operations in single engine aircraft with dual alternators and vacuum systems and special equipment. A 4 to 6 seat aircraft can be outfitted with the latest avionics gear and safety equipment and upgraded interiors to provide a very comfortable and safe flight. The Cirrus 22 and Beech A-36 are examples. Some 6 place aircraft offer fast, easy entry via clam-shell doors, low acquisition cost, fast, powerful and proven. An A-36 cost of about \$300,000, 285 horsepower, 1,500 pound useful load, climb at 1,000 FPM, 170 knots speed.

9 seat aircraft such as the Cessna Caravan 208, Pilatus PC-12, King Air type aircraft are very expensive to obtain and operate and they typically load less than 50% of the seats on typical flights where used for charter and commuter service. Cirrus 22 type 4 seat aircraft have are in use for some shuttle operations, although fast and efficient, they are very expensive to obtain and do not provide the comfort of a slightly larger aircraft. However, there are Part 135 companies such as www.flyhopscotch.com and www.imagineair.com that are using Cirrus 22 for commercial passenger service on the east coast.

Technology applied to recent model 4 to 6 seat aircraft can offer excellent price / performance that can come close to matching a new or nearly new aircraft. They must, however, comply completely with FAA Part 135 regulations.

Most importantly, an online system that can match supply and demand and optimize for the lowest cost per seat is technically viable today and proven models exist in several online systems used by volunteer medical flying organizations such as www.AngelFlightWest.org For on-demand ground transport, systems such as Uber and Lyft have revolutionized car travel . We need to apply these modern technologies as a resource to take a completely different approach to providing rural air service to Oregon.

Dynamic demand type model with online scheduling and payment

A sophisticated online website and mobile app system could be used to request a flight or book a seat. Modern technology can assist in optimizing the system. Online flexible scheduling will maximize the number of people and destinations (similar to Doodle for finding preferred meeting times) Schedule optimization to maximize passenger load and minimize cost per seat Online payment ala modern purchase and payment models.

This online model is further discussed in a Strawman Out-of-The-box document that is follow-on to this whitepaper.

ORAVI Rural Air Committee

An ORAVI Rural Air Service Committee has been formed to work with the Oregon Department of Aviation, rural communities, air service operators and other resources to assist in defining what type of rural air programs might be considered or created.

Our goal is to define services that would work, at a price travelers are willing to pay. Then, to work with communities who desire that model for their airport and match them together.

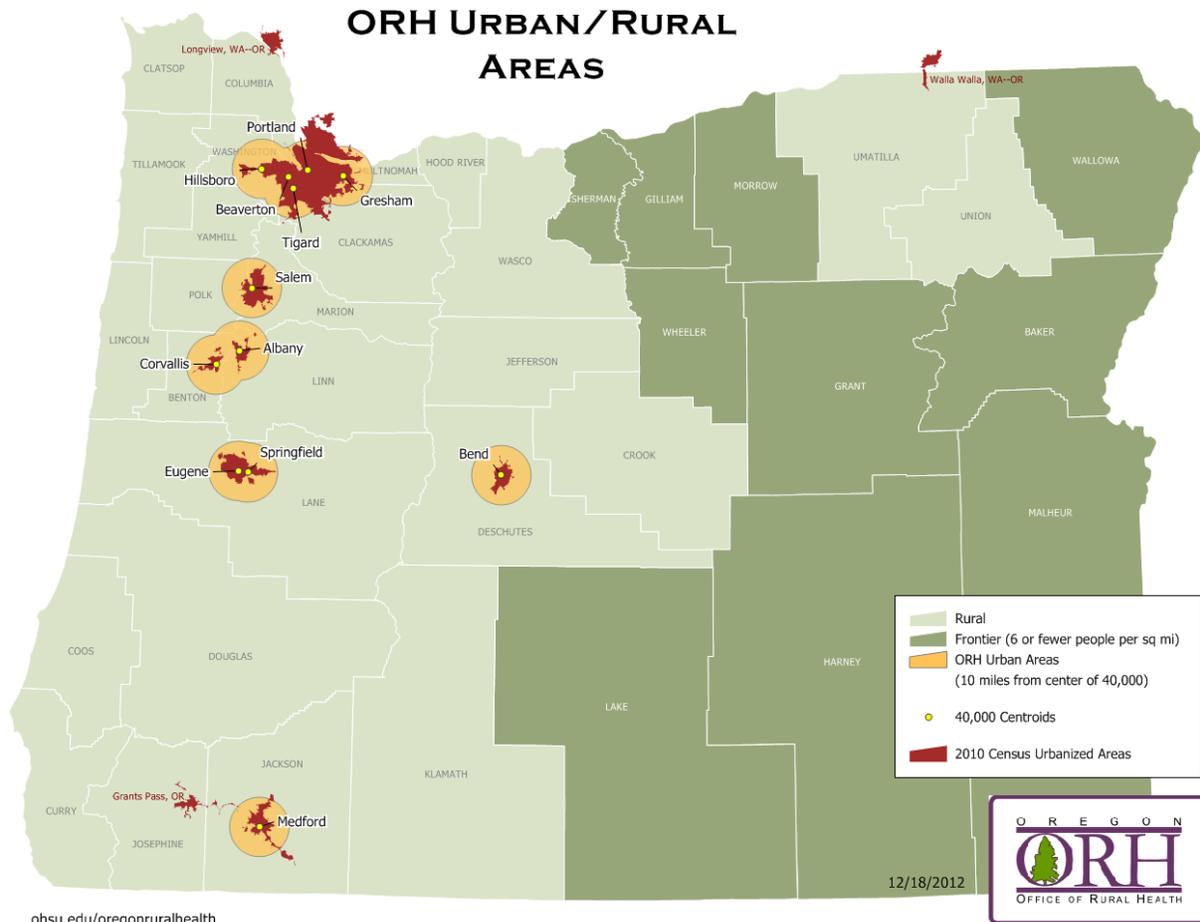
The ORAVI Rural Air Committee is chaired by board member Scott Brooksby and we work with the Oregon State Department of Aviation and ORAVI members to seek solutions. We are looking for resources and ideas, defining needs and models and participating in focus meetings.

Definition of Rural

The unserved communities are those shown in the light and dark green areas of the map. (With the exceptions of Pendleton, North Bend and Klamath Falls which have commuter service to Portland)

Oregon Office of Rural Health rural definition

Rural includes geographic areas in Oregon 10 or more miles from the centroid of a population center of 40,000 people or more.



Our next steps:

1-Continue contact with 5 rural communities to determine their interest level and contact an additional 5 communities. Distill this list of 10 to 3 primary targets to further investigate and survey.

2-Contact Oregon FAA Part 135 operators to determine their level of interest. Distill this list to the operators who have an interest in providing rural air. There are 15 operators with 25 aircraft. We are in touch with several of them so far.

3-Bring the Part 135 operators together for a meeting to discuss participating in a consortium that would provide scheduling and promotion services.

4-Match operators and communities together and assist with resources to explore possibilities of on-demand and limited scheduled air service to / from specific communities.

5-Assist with our member's grant requests.

6-If it turns out to be feasible, establish Rural Air Oregon as an entity that can match riders to operators with an online system similar to Expedia, Travelocity, Kayak. This system would provide online booking, payment and distribution of subsidies based on the number of seats flown.

7-If a central web based system is not feasible, then work with operators and communities to assist with establishing routes and structures that meet both rural communities and air service operators criteria.

8- Obtain a source of funding to make ORAVI able to actively pursue rural air service options and to fund an online system to promote and possibly schedule rural air operations.