



Municipality of Anchorage, Alaska
Parks & Recreation Department

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MEMORANDUM

Date: April 5, 2018

To: Parks & Recreation Commission

From: Parks and Recreation Department

PRC 18-16: Proposed Permit Renewal for

Project: Telecommunications Antenna at Kincaid Park

Background and Proposal

The Municipal Real Estate Department advises that the permit for certain antenna and auxiliary equipment at Kincaid Park expires this year, and the permit holder has requested a new permit to allow the equipment to remain.

The permit was issued in 2009 to the Megadata Corporation/Passur Aerospace for its PASSUR (Passive Secondary Surveillance Radar) system. The permit was last renewed in 2015 with recommendation by the Parks and Recreation Commission (PRC 2015-08). The Parks and Recreation Department understands that the system continues to be used by the Ted Stevens Anchorage International Airport to support the Airport's operations, including accounting and services related to air carriers. The Parks Department understands that the system has also been used by commercial operators to enhance their services. As described, the system allows accurate tracking of aircraft at the airport to confirm arrivals and departures for billing and service purposes. Additional information about the system is attached for reference.

TSAIA staff indicated in 2008 that the information provided by the PASSUR system is useful to the airport to manage operations and costs, and so allows the Airport to meet its public service objectives more effectively and efficiently. The Parks Department understands that the system may also be used to improve emergency response.

The site of the antenna is at the top of the Kincaid Park Outdoor Center. The antenna is 24 inches tall and 35 inches in diameter, and is supported on a pole attached to an exterior wall. The antenna is approximately four feet above the wall to allow direct line of sight to the FAA's ASR-11 radar located in the park to the east of the Outdoor Center. Auxiliary equipment is located within the building.

Parks and Recreation staff have reported no problems or other negative effects of the equipment.

The Parks and Recreation Department understands that a new permit, like the permit set to expire, would be a temporary/revocable permit for a term of one year but may have options to renew annually for up to two additional years. Renewal or extension of the permit may be subject to further staff review, at a minimum, and may be subject to further restrictions. The permit requires Assembly authorization.

Parks and Recreation staff believes that, for the project as proposed, the granting of this permit would not significantly diminish the potential use of the park, nor would use of the permit have material impact on the long-term appearance of the park. Use of the system by the Airport appears to provide a public benefit, as well.

Recommendation

Parks and Recreation staff requests that the Parks and Recreation Commission adopt the attached resolution to authorize the Municipality to issue the subject permit for the aircraft tracking system subject to the conditions noted.

Cc: MOA Real Estate Department



Municipality of Anchorage, Alaska
Parks & Recreation Commission

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Resolution No. 2018-10
Renewal of Permit for a Telecommunications Antenna at Kincaid Park

WHEREAS, the Anchorage Parks and Recreation Commission serves in an advisory capacity to both the Mayor and the Assembly; and

WHEREAS, the Anchorage Parks and Recreation Commission has the responsibility and duty to provide for the long term vision of our park system by ensuring that a balance of parks, natural resources, and recreation facilities provides for the health, welfare, and safety of all residents of the Anchorage Bowl; and

WHEREAS, in 2008 the Ted Stevens Anchorage International Airport provided information supporting the benefit of placement of the subject antenna and appurtenances to the Airport's operations and therefore to the public that uses Airport facilities; and

WHEREAS, the Anchorage Parks and Recreation Commission at its November 13, 2008, regular meeting recommended authorizing a revocable permit for placement of the antenna and appurtenances at Kincaid Park, finding that the grant of a revocable permit for the equipment would not significantly diminish the potential use of the park, nor would use of the permit have material impact on the long-term appearance of the park.; and

WHEREAS, the Municipality issued a permit for the antenna and equipment for one year with renewal options for five additional years, the permit was renewed in 2015 for up to three years, and the permit as extended expires this year; and

WHEREAS, the permit holder has requested a new permit to continue operation of the existing equipment to continue providing the service; and

WHEREAS, the Parks and Recreation Department is not aware of adverse effects upon Kincaid Park and use of the park lands and facilities; now, therefore

BE IT RESOLVED, that the Parks and Recreation Commission has no objection to granting a revocable use permit for the aircraft tracking equipment (antenna and appurtenances) within Kincaid Park, with the following conditions and understandings:

1. The permit document shall be subject to review by the Municipal Attorney, and contain appropriate terms in the interest of the Municipality including terms pertaining to site restoration.
2. The permittee shall pay applicable fees in accordance with code and current fee schedule, including fair market value or reasonable periodic rate on basis determined by the Municipality.
3. The permittee shall be responsible for complying with all applicable local, state, and federal regulations and obtaining any and all other required permits for the proposed project.

PASSED AND APPROVED by the Anchorage Parks and Recreation Commission this 10th day of May, 2018.

Chair
Parks and Recreation Commission

ATTEST:

John Rodda, Director
Parks & Recreation Department

Proposed PASSUR Installation Plan at Kincaid Park Outdoor Center

PASSUR Equipment Description

The PASSUR system (**PA**ssive **S**econdary **S**urveillance **R**adar) tracks aircraft in real time out to a range of 150 nmi and does not transmit any radiation. It therefore does not cause any interference to any communication systems. It does this by listening to the interrogations that are transmitted by the ASR-11 radar located in the park near Kincaid Park Outdoor Center. The PASSUR system “locks” on these radar interrogations so the system knows exactly where the ASR-11 antenna is pointing at all times. (The ASR-11 antenna is not physically visible since it is enclosed in a Radome.) This is how the PASSUR system calculates the azimuth of the aircraft. After locking onto the ASR-11 interrogations the system listens to the aircraft transponder responses. From the transponder responses we receive both the altitude and the beacon code identity. If the aircraft is equipped with a Mode S transponder or a TCAS system (Traffic Collision Alert System) we also decode those messages. Imbedded in these messages is a 24-bit number, that when decoded, will give the tail number of the aircraft. PASSUR also receives and decodes ADS-B messages as well that also contain position as well as other pertinent data. The fact that radio waves travel at the speed of light PASSUR calculates the range of the aircraft, and with successive updates of position, the ground speed is calculated as well. The aircraft track information is then transmitted back over a secure frame relay connection to our server room located in Bohemia, LI. The track data is then further correlated with another source of data that we receive from the Volpe Transportation Center. This is called the ASDI (Aircraft Situation Display to Industry) data. The ASDI data stream that we receive sends aircraft track information at a slower speed than the PASSUR system, but it contains a very accurate time stamp, aircraft position, and the flight number of the aircraft. The ASDI data is then correlated with the data from the PASSUR system. If a match is determined the beacon code that we received from the transponder will be replaced with the aircraft flight number. This correlated data is then sent to the end user over the Internet, or in some cases, back over the secure frame relay circuit in the event the end user would like to see the actual track data in real time. Any real time data that is sent over the Internet is delayed by 10 minutes for security reasons.

The main components of the PASSUR system is the antenna and the equipment rack. The antenna is 24-inches high and 35-inches in diameter (Figure 1), and the equipment rack is 69-inches high, 24-inches wide, and 35- inches deep (Figure 2). The

antenna has to be installed in a location that has direct line of sight to the ASR-11. The site at Kincaid Park Outdoor Center is an excellent location since it meets this criterion as well has a clear unobstructed view of the aircraft landing and departing from the Ted Stevens International Airport.

PASSUR Installation Plan

The installation plan that is presented below will be broken up into four sections. These are the PASSUR antenna installation, the cables that will be connected between the antenna and the equipment rack, the placement of the equipment rack and power requirements, and the necessary telecommunications necessary to connect the PASSUR system to our server in New York.

1. Antenna Installation

As mentioned above the PASSUR antenna dimension is 24-inches high and has a diameter of 35-inches (Figure 1). The antenna is constructed using brushed aluminum reflectors with aluminum top and bottom rings for support. All hardware that is used in assembling the antenna is stainless steel and therefore the antenna will retain its clean appearance and will not rust. We propose to use an aluminum extruded mast to support the antenna. The mast has an outside diameter of 4-inches and has a ¼-inch wall thickness. We would like to mount the mast to the left of the outside light fixture that is shown in Figure 3. The mast will be approximately 22-feet long that would place the antenna about 4-feet above the roof line. If necessary we can also co-locate the small Yagi antenna that is nearby on our mast which will reduce the footprint of the masts located on that rear wall. To ensure the esthetics of the building the mast will be painted the same bluish gray color that the building has been painted so that it will blend into the surroundings. The mast will be attached to the wall using brackets that fit around the mast at three locations. These brackets are designed to accept a ¾-inch stainless rod and the brackets will be spaced off the wall using aluminum spacers in order to clear the roof line. Holes will then be drilled through the wall to secure the brackets to the inside wall that will be braced by Unistruts. The Unistruts will be hidden by the file cabinet that is in the closet room as well as the PASSUR rack. PASSUR Aerospace will have any minor construction work performed by a licensed electrical contractor in Anchorage.

2. Cable Connection between the antenna and the equipment rack

There are six cables that connect the PASSUR antenna to the equipment rack. Four of these cables are coaxial cables and the remaining two are multi conductor cables that are used for the GPS data and for steering the PASSUR antenna. We propose to drill a 3-inch diameter hole through the wall next to the antenna mast and then install a 3-inch conduit with a weather head to allow the antenna cables to enter the closet where the PASSUR equipment rack will be installed. The cable length will be less than 25-feet. The conduit will also be painted the same bluish gray color that the mast will be painted. The weather head will insure that no water will enter inside the closet area. The conduit will also be sealed for protection.

3. Equipment rack location

After the site survey was completed the most convenient place for the equipment rack to be located was the closet room on the top floor next to the bathroom in one of the offices. This is shown in Figure 4. This room is behind the antenna mast that would be mounted on the outside wall. The requirement for the PASUR rack is to be within 300 feet from the antenna. This location is less than 25-feet from the antenna. Adequate power is available in the room. The PASSUR equipment requires 115 vac at a maximum of 5 amperes. The equipment rack will also be attached to the floor using brackets to prevent it from moving if an earth quake occurs.

4. Telecommunications Requirements

The PASSUR equipment requires two analog phone lines as well as a frame relay connection. The DMARC strip is shown in Figure 5. If extra cable pairs are not available in the room where the PASSUR equipment rack will be installed we will have four pair of wires extended to this room. We will discuss this with the Park IT personnel in Anchorage.

PASSUR Benefits to Anchorage International Airport

5. The Passur System data is used by multiple departments at Anchorage International Airport, including operations, finance, and information technology. The accuracy, reliability, and detailed information provided by the Passur System is completely unique. Benefits include access to real-time flight information that is used to aide and improve daily operational decision making. The system provides a detailed

status of all (ANC) arriving and departing aircraft. In addition, Fixed Based Operator's (FBO's), benefit from the information allowing them to better serve the corporate flight operations at ANC. Airport finance and planning departments utilize the data to audit landing fee reports to ensure fair, equitable, and accurate capture of all landing fee revenue due. The information derived from the system, which includes accurate real time arrival information, also contributes to an improved customer experience for travelers and those who meet and greet them at Anchorage International Airport.

Our radar

All of our solutions are built on our unique worldwide PASSUR radar installations, the world's largest independent radar network.

Our database

The network feeds our one-of-a-kind aviation database of live and historical aviation information, ensuring you access to the richest aviation database available when you need it – the right information at the right time.

Our network of users

When you join PASSUR, you join a worldwide network of aviation users – from airlines, airports, FBOs, ATC, cargo and many others – who together make the network smarter every day by interacting on our platforms, feeding information, and making decisions collaboratively.

Meet your goals

We provide access to timely information that is otherwise very difficult to find in one place. All our solutions target problems with a defined financial impact, including:

- Live operational control – flight tracking, situational awareness, airspace/airport performance, customer activity data
- Revenue management – landing fees, fuel sales
- Cost control – on-time, flight and bag connections, gate unmets, diversions
- Public information – FIDs
- Marketing
- Capacity management – flow rates, runway utilization, just-in-time staffing, flow control, de-icing, gate allocation
- Environmental issues – fuel burn, glycol utilization, noise mitigation

Low risk, easy-to-use solutions

- Subscribe, don't buy: All PASSUR solutions are delivered as a subscription with monthly fees.

- Spend less: Compared to traditional aviation information solutions, PASSUR solutions are much lower in cost, demand on customer IT resources, and time to deployment.
- Proven: All PASSUR solutions have results, usually financial, which have been documented by our users or studies. We can share these with you, and also show you how you can capture your own ROI metrics.
- Professional Services: Our sales and implementation teams know your business, because they used to work *in* your business. Air traffic experts, pilots, airport finance and environmental professionals, aviation management graduates, airline system ops managers, even aviation journalists – the PASSUR team knows how to apply our tools to your business environment.

1. Airlines

Airlines need timely, accurate, independent information to be alerted to critical events, make timely decisions as situations are developing, and conduct post-operations analysis.

PASSUR solutions save airlines millions of dollars annually. Access to accurate information at the right time and right place cuts costs and pleases passengers. Accurate arrival information – seamlessly integrated throughout an operation – make an organized, disciplined process work even more smoothly.

All too frequently, a flight will pull up to the gate and the ground services crew is unprepared to meet it. It's one of the most frustrating problems for airline CEOs, operations managers and passengers. Why does this happen? Airlines today don't always know the exact aircraft arrival time. This problem costs airlines millions of dollars annually.

PASSUR solutions for gate unmet include:

Data

Airlines can enhance gate, flight management, reservation, and baggage systems with the PASSUR flight status data feed, to provide the most accurate ETAs throughout all systems and processes that depend on accurate flight status (see chart below).

Software

PASSUR Portal™ provides a dashboard application of all aircraft arrivals, viewable from any airline Web-accessed computer.

PASSUR FlightPerform™ and PASSUR inSight™ enable airlines to visualize incoming aircraft and airspace conditions with the same immediacy and precision as Air Traffic Control. There is no comparable flight and airspace visualization product.

Why PASSUR

Access to accurate information at the right time and place cuts costs, improves reliability, and improves the passenger experience. Just recently, after implementing a PASSUR solution, an airline manager was amazed by how the operation was far more efficient. Accurate arrival information – seamlessly integrated throughout the operation – made an organized, disciplined process work even more smoothly.

Airlines use PASSUR solutions to save their networks tens of millions annually. We're proven and we save money. We provide an instant, live status of your entire network – and how your airline compares with competitors. And, with our subscription-based, web-delivered products, you can start saving money within days.

Our solutions are driven by our proprietary, one-of-a-kind database and the U.S. and international network of passive radars that we own, deploy and operate. We currently serve dozens of airlines throughout the world, including 7 of the top 10.

Our approach

Airlines have challenged us with some of their most critical problems, like alerting and mitigating Ground Delay Programs, preventing diversions, and reducing fuel burn due to gate unmet. The result is our suite of proven information solutions. Unlike “stove-piped” technology solutions that promise more than they deliver, PASSUR solutions can demonstrate clear cost savings, and they can be implemented immediately.

2. Airports

You need standardized, independent information and easy-to-access, simple software tools to achieve your business goals. More than 50 airports now partner with PASSUR for landing fee management, FIDS, ramp tower operations, performance analysis, planning, noise, or collaborative decision making.

Why PASSUR

Airports are no longer building landlords – they are major 21st century businesses. They need the tools to maximize revenue, ensure their limited resources are efficiently meeting demand in real time, and provide first-class services to their multiple customer segments.

Our network is what makes us different – a network of radar, of information, and of customers. When you become a PASSUR network member, you join a group of more than 50 airports who access the right information at the right time, and who feed our growing set of solutions targeted to specific business problems.

Our approach

Airports have challenged us with some of their most critical problems, such as landing fee management and accurate information for passengers. The result is our suite of proven information solutions.

We believe airports reap multiple benefits from having a standardized, independent set of aviation statistics feeding all their business tools.

We know that airport software solutions should be targeted to specific problems, like delays or communicating field conditions, so that the airport can implement solutions in a matter of weeks, as opposed to getting bogged down in a multi-year IT implementation project.

We offer collaborative decision making – a networked Web platform that allows the airport to function as the hub of information and coordination that it has become.

3. FBOs

PASSUR FBO solutions provide a single platform from which you can identify and market to the best prospective customers, ensure the most appropriate price for maximum margin, and guarantee there are “no surprises” on the ramp or the customer lobby.

Why PASSUR

PASSUR helps FBOs make the best use of their staff by simplifying and consolidating many critical parts of the business, including marketing, pricing and customer service. We help you grow your business in fuel volume, pricing integrity, and customer service that predicts and anticipates rather than reacts and puts out fires.

Our network is what makes us different – a network of radar, of information, and of customers. When you become a PASSUR network member, you join hundreds of FBOs who access the right information at the right time, and who feed our growing set of solutions targeted to specific business problems.

Our approach

As demand for corporate aviation surges, and FBOs consolidate into alliances and networks, the industry has challenged us to roll up the most accurate, detailed information from our radar network into a centralized marketing, pricing and customer service solution suite – a one-stop platform to maximize revenue and profitability – and ensure the best service.

Traditionally FBOs have resorted to multiple software tools to accomplish these tasks – tools that cost more in time, effort and training than they deliver.

4. System Integrators

System integrators need access to the most accurate, comprehensive, secure and reliable data – whether for airspace security applications; passenger display systems; airport operational databases; gate, schedule and crew management; or financial statistics and asset tracking. PASSUR system integrator data products are built on our unique international network of radar, our integrated aviation database, and sophisticated algorithms and understanding of the airspace, that ensure the most precise live and archived data in multiple formats. PASSUR data also ensures a single source for reliability and accuracy, eliminating the complexity and failure points of multiple-source solutions.

Why PASSUR

PASSUR's proprietary radar network, tracking algorithms and flight and airspace analysis tools ensure that a system integrator's project and solutions perform as intended.

System integrators are tapping into the international network of PASSUR radar and our correlated database of live and archived information, where multiple data sets are combined and consolidated in real time, eliminating the need for integrators to create pipes with dozens of other data providers. The result is less complex, with far fewer points of failure.

We have more than 40 years of experience managing our own radar network, and building integrated databases, data feeds and software solutions from it. There is no substitute for this deep knowledge of the airspace and flight behavior, and the analytical tools that have been developed to turn that data into useful information products that support complex aviation system solutions.

Our approach

Our radar and database experts have years of experience providing the precise data mix required by different projects, anywhere along the raw-to-processed data continuum, and in a variety of formats. We listen to the requirements, carefully define the needs, then offer a variety of existing or customized data feed options or software/visual display solutions to meet the needs.

Figure 3
Kincaid Park
Outdoor Center

Aproximate location of
Antenna Mast



Figure 1

**Antenna
weight 60 lbs
height 24"
diameter 35"**



**PASSUR
Antenna**



PASSUR Antenna at Kincaid
Park Outdoor Center