ALBERNI-CLAYOQUOT
REGIONAL DISTRICT

Alberni Valley Regional Airport

Asset Management Plan

Version 1

DATE OF ADOPTION: MARCH 11, 2020

Contents

1 EXECUTIVE SUMMARY

1.1 Purpose of the Plan

The Alberni Valley Regional Airport (AVRA) Asset Management Plan (AMP) is part of the ACRD Asset Management Program to facilitate informed decision-making and effective allocation of resources for infrastructure. The purpose of an AMP is to deliver sustainable, cost effective services to ACRD communities in a socially, economically and environmentally responsible manner, while providing the Level of Service (LOS) agreed upon by the Board, Transport Canada and Island Health.

1.2 Asset Description

The AVRA assets include:

- Taxiways and Apron
- Runway
- Terminal building and leased spaces
- Fencing
- Fuel system
- Weather station
- Technical and runway equipment
- Water system, wastewater systems and culverts
- Parking lots & Access Road

1.3 Levels of Service

The present funding levels are sufficient to continue to provide the existing services at current levels of service in the short-term if all grant funding applications are successful and all eligible ACAP and BCAAP assets are covered. If not, the main service consequences will be inability to accommodate leasehold tenants, a decline in water quality or loss of service and failing infrastructure used in daily applications. Current funding levels are insufficient for the medium and long-term.

1.4 Future Demand

The main demands for new services are created by:

- Changes in usage
- Climate change
- Board of Directors and user level of service expectations
- Transport Canada regulations
- Island Health regulations for water and wastewater

These demands will be managed through a combination of managing existing assets, upgrading of existing assets and providing new assets to meet demand and demand management. Demand management practices include non-asset solutions, insuring against risks and mitigating failures.

1.5 Lifecycle Management Plan

Asset Management assists in conscious and calculated decisions for all assets covered in AMPs from acquisition, operation, maintenance, disposal and renewal or upgrade. During the course of an assets life, the replacement value is known along with an estimated date of replacement based on age and condition including estimated disposal cost. Annual contributions required are calculated for each component in each service so we can measure the funding gap between current and future levels of service in order to align funding and service expectations. The AM Program achieves responsible and reliable lifecycle management practices.

The Asset Management Coordinator has created the AVRA AMP with the assistance of consulting firms, airport staff and management. Asset Management systems will continue to be maintained once this position expires by ACRD staff. Estimated service life (ESL) and replacement cost of the infrastructure were determined using internal policies and industry standards. Management staff provided risk assessments and goals.

1.6 Financial Summary

The AVRA has a total current replacement value of $4.56 million in 2020 dollars. With an estimated inflation rate of 1.5%, estimated future replacement costs are $5.98 million for current infrastructure at the end of the components estimated service life. Not included in the estimates are projections for future demand and projected capital upgrades as the AVRA has recently had a major expansion and no further increases in demands are anticipated at this time.

The participating areas of the AVRA are the City of Port Alberni, Electoral Area B – Beaufort, Electoral Area D – Sproat Lake, Electoral Area E – Beaver Creek and Electoral Area F – Cherry Creek and together they have a total assessed value of $4.3 billion. The summarized financial plan for AVRA was as follows:

2019 Alberni Valley Regional Airport Financial Plan	Amount
Operating Expenses	$279,500
Debt Repayment	$316,000
Contribution to Reserves from Operating	$270,000
Conditional Grants	$162,500
Total Alberni Valley Regional Airport 2019 Expenditures	**$1,028,000**

In 2019, the revenues for the AVRA service were $176,206, the surplus used from prior years was approximately $97,431 and the resulting tax requisition was approximately $643,069. Total revenues for AVRA were $916,706. The 2019 tax requisition resulted in a converted annual residential tax rate of $0.1177.

Omitting possible grant funding opportunities, based on the projected future renewal costs and the current reserve level, funding of the airport for the next 20 years will require annual investments of approximately $256,000 or a converted residential tax rate of $0.047, strictly for capital expenditures alone, excluding operational or maintenance costs. In reality, renewal of system components will occur in cycles based on asset life, completion of major improvements and according to their condition and use. Grant funds will likely be available for select projects that are crucial to airport activities but the timing and funding availability of grants isn't certain, nor is the success of the grant application.

The most significant project recently completed cost $1 million for relocation of the North West Industrial Road due to obstacle limitations; this project was partially funded through the BC Airports Assistance Program (BCAAP) with capital reserves funding the remainder. The weather station is also due for replacement as it is no longer supported by the manufacturer and is nearing the end of useful life. The $106,000 replacement is scheduled for early 2020 and is eligible for 75% BCAAP funding.

The AVRA is comprised of only essential aerodrome assets, with an average condition rating of "Good". The majority of infrastructure at the airport are leasehold structures owned and operated by long-term tenants.

1.7 Asset Management Practices

Assets are managed using a combination of TRACR II AIM, Microsoft Office and Vadim. Registries and AMPs will be reviewed and updated on an annual basis prior to the release of the following version.

1.8 Monitoring and Improvement Program

At the end of this AMP there will be an Improvement Plan intended to improve Asset Management practices within AVRA and the Asset Management Program as a whole. Generally included in Improvement Plans are suggested changes or additions to documented inspections and condition assessments, monitoring of asset-specific operational and maintenance procedures and assigning present risks a numerical rating in order to measure mitigation success.

2 INTRODUCTION

2.1 Background

This AMP encompasses all AVRA assets, including maintenance equipment. The purpose of the plan is to facilitate the strategic management of the airport infrastructure and the services provided by it, giving guidance on new and existing infrastructure to maximize use of financial resources long term, reduce risk and provide a prioritized view for service continuity and improvements over a 20-year planning period.

The ACRD AM Program follows the advice of the Asset Management BC Framework (AMBC); Plans are designed to be living documents that change with the organization to reflect progress made while continuously striving for sustainable service delivery. Consideration of community priorities and an understanding of trade-offs between resources and desired services is the foundation of sound AM practices. The AMBC Roadmap guides organizations through basic, intermediate and advanced Asset Management Practices. It is the goal of the ACRD to achieve a basic to intermediate level of understanding.

This AMP should be read in the context of the ACRD's Asset Management Policy and Strategy. The AVRA AMP is a living document and will develop with AM practices and with the influence of the following corporate documents:

- Annual strategic priorities
- Short term and long term financial plans
- Policies and bylaws
- Grant applications and funding

Asset Management Plans are designed for several reasons; first, to guide Management and the Board in planning and decision-making; second, to aid in the creation of short-term and long-term financial plans as well as operational plans; and last, to spark community engagement for the service.

As the ACRD moves through the AM implementation process, knowledge and understanding of the AM program increases and it is expected that this plan evolve further, solidifying assumptions made and filling in any present information gaps where further research or information is required.

2.2 Asset Inventory

The AVRA asset inventory consists of many components including:

- 1 Runways
- 3 Taxiways
- 1 Aprons
- Parking lot & access roads
- 3 septic fields
- Fuel tanks and pump
- Lighting and technical systems
- Mobile terminal building
- Fencing
- Specialized heavy machinery
- Water system
- Caretaker pad

Current replacement costs were estimated by the Asset Management Coordinator and Airport Manager using unit costs from industry standards and previous works. Unit costs include all installation and estimated remediation activities. Remaining useful life estimates were based on installation dates and expected service life provided by the Airport staff based on knowledge and experience.

There are currently approximately 3,810 meters of fencing surrounding and within the AVRA property in varying conditions including Animal Control fencing, chain-link fencing and several vehicle gates. According to the Airport Manager, there is more fencing required to meet Transport Canada standards. Approximately 1,010 meters of fencing will need to be added to become compliant with a current estimated cost of $27,900. This cost is not included in the current fencing inventory but is accounted for in the annual contribution requirements.

The original runway and recent runway extension were constructed using asphalt and is expected to last 30 years after construction.

Leasehold properties are in charge of their own well water and wastewater services.

2.3 Levels of Service

Level of Service (LOS) can be defined as the service quality for a given activity or a commitment to carry out a given action in response to an event or asset condition. LOS is broken into two categories:

Customer LOS: measure how the customer receives the service and measure of value we provide.

Technical LOS: technical measures of performance relating to the allocation of resources to service activities to best achieve the desired outcomes and demonstrate effective performance.

- Operations – ongoing activities, day-to-day operations
- Maintenance – activities enabling an asset to provide service for its planned life
- Renewal – activities that return the service capability to near original capacity
- Upgrade – activities that provide a higher level of service

The current and expected Levels of Service detailed in Tables 2.1 and 2.2 shows the expected levels of service based on resource levels in the current financial plan. Organizational measures are measures of fact related to the service delivery outcome.

Table 2.1 - Customer Level of Service Objectives

Values	Expectation	Measure	Current Performance	Desired Performance
Quality	Safe and accessible airport facilities including water and wastewater	Water quality samples meet or exceed Island Health for drinking water quality Wastewater systems function as expected with no adverse impacts to service delivery or tenants	Water quality meets Island Health standards for drinking water. On-site well produces high quality water No complaints relating to wastewater systems	No complaints related to water quality, exceeding Island Health standards No complaints relating to wastewater systems
Function	Airport facilities meet users' needs without interruption of services	Usage of facility including capacity and related infrastructure interruptions or failures	Fuel system and water are operated by electric pumps. Power outages can cause interruptions to service including a continuous week in 2018. Outages occur 1-2 times per year	Backup power source for outages to prevent interruptions to service
Capacity and Use	Adequate parking and terminal space at all times	Number of service complaints related to capacity or restriction of flights relating to capacity	Aircraft and vehicle parking is adequate and functional for all users of the airport during regular operations	Aircraft and vehicle parking is adequate and functional for all users of the airport during all peaks in passenger traffic

AVRA Lighting System

Table 2.2 - Technical Levels of Service

Service	Service Objective	Objective Measure	Current Performance	Desired Outcome
Operations **2019 Budget:** $104,000	Airport road and surfaces are kept clear and accessible	Regular runway, apron and taxiway inspections Obstacles cleared as needed	Airport Manager brings equipment from Long Beach when required for runway clearing. Weather and traffic delays will prevent required clearing. Runways are inspected as needed, bi-weekly at minimum, and reported to the Airport Manager	No interruptions to service due to unclear surfaces. Regular condition assessments performed on all surfaces
	Access to clean, safe water	Monitor water system, quality and testing required by VIHA	Water quality and potability samples meet VIHA standards	Water quality and potability samples meet VIHA standards
Maintenance **2019 Budget:** $18,000	Airport equipment and facilities are maintained to meet Transport Canada regulations for aerodromes	No interruption of services due to maintenance	Interruptions may result from maintenance equipment being stored at Long Beach Airport. Surfaces are inspected as needed, bi-weekly at minimum, and reported to the Airport Manager	Assets are inspected and maintained in a timely manner to not cause interruptions to service
	Water and wastewater access are without interruption	Regular water maintenance procedures occur as needed (flushing, repairs, assessments)	Water systems are inspected weekly. Repairs are reactive rather than proactive. Lack of a backup power source will cause interruptions in water access during power outages Wastewater systems are pumped out approximately every 4 years	Water and wastewater repairs are proactive. Repairs and maintenance requirements are identified through regular assessments and performed before service interruptions
Renewal **2019 Budget:** No 2019 budget for renewals	Critical infrastructure is replaced when quality falls below accepted levels	Useful life of airport infrastructure increases over time as renewals are performed. Renewal needs identified by staff	Renewals are reactive with minimal impact to service delivery. Budgetary constraints do not allow for necessary repairs or replacement outside of grant funded opportunities	Repairs, replacements or renewals are adequately budgeted and occur as needed to avoid failures

Service	Service Objective	Objective Measure	Current Performance	Desired Outcome
Upgrade/ New **2019 Budget:** $340,000	Assets are upgraded to accommodate increased capacity and use as air transportation grows	Number of parking spaces available at busy periods, requests for airport to accommodate larger aircraft	On rare occasions, flights destined for Long Beach will land at AVRA due to weather conditions. This will cause the terminal to be over capacity before passengers can leave by bus or plane.	As flight traffic increases, expansions are considered and executed as needed to accommodate passengers and aircrafts to avoid capacity issues
	Ability to land at airport in adverse weather, especially flights redirected from LBA	Upgrades to technology to support airport usage in poor weather	GPS approach technology is in the process of being implemented to allow for landings in adverse weather	GPS approach technology is implemented and upgraded as required

For the purposes of this report, customer's level of service expectations are set upon the annual adoption of the financial plan and strategic priorities as it is a reflection of the values, policies, and priorities of the Board of Directors with input from committees and public engagement sessions, if desired. This will assist the ACRD's Board of Directors and stakeholders in matching the level of service required, service risks and consequences with the community's ability and willingness to pay for the service.

Transport Canada also provides regulations for airports and aerodromes to which AVRA must conform. More specifically, Part III of the Canadian Aviation Regulations outlines the following topics relevant to runways: thresholds and end coordinates, elevations, pavements, slopes, taxiways, obstacles, wind indicators, markings, lighting, signs, maintenance and fuel handling.

It is important to monitor the service levels provided regularly as these will change as regulations and expectations change. The current performance is influenced by work efficiencies, technology, and Transport Canada and Island Health regulations that will change over time. Review and establishment of the agreed position that achieves the best balance between service, risk and cost is essential.

2.4 Emergency Preparedness

The AVRA is a registered aerodrome and therefore is not required to maintain an Emergency Response Plan (ERP) under the Canadain Avaition Regulations. Though not required, airport staff are putting operational procedures in place that would be an asset to the aerodrome, similar to those typically included in an ERP.

3 CURRENT STATE OF AVRA INFRASTRUCTURE

3.1 Aerodrome Uses – Past, Present and Future

Construction of the aerodrome began in 1989 with final completion of the airport in 1993, after operating for a short period with a gravel runway. Lands were transferred in fee simple from the Province of BC in 1991 for airport purposes. Title will remain with the ACRD so long as the land is used for airport purposes with restrictive covenants stating that the land will be used for the core purpose of an airport. Construction was funded with $1.5 million from Air Transport Assistance Program funding and $1.5 million from the ACRD. Original demand stemmed from a desire by local businesses to access air travel on a more local scale and to shift economic focus from the declining forest industry towards tourism. Tourism became a leading factor leading up to the 1992 BC Summer Games held in Port Alberni. The previously used Somass air strip saw upwards of 3,000 aircraft movements annually and the site could not accommodate the anticipated increase in air travel.

In 2016, the ACRD expanded the runway in overall width and length to allow for larger aircraft and both day and night runway usage with the intent to encourage regional economic development and improve levels of service. The runway expansion added 1,000 feet of runway at the southeast corner resulting in the removal of the existing non-airport related infrastructure and the entire runway receiving new asphalt, paint and a lighting system. Final costs for this project, including grant funded costs, totalled $8.27 million. Prior to the runway expansion, AVRA hosted non-airport related events such as drag racing. The Province has recently informed the ACRD that non-airport uses such as drag racing is not a permitted use under the Crown Grant. The ACRD will work to clarify the terms of the Crown Grant with respect to permitted land uses that will assist the AVRA Advisory Committee with the development of a long-term AVRA vision.

AVRA Prior to Expansion

Boeing 737 landing on the new Southeast Runway Expansion

Currently, AVRA is home to seven leaseholders, four of which use the aerodrome for hangar space, aircraft maintenance, repair and storage and a gliding club. AVRA currently serves an industrial driven purpose versus the Long Beach Airport that serves a tourism driven purpose. The anchor tenant currently has approximately 80 employees based out of AVRA with expectation of up to 100 employees. The Alberni Valley falls within the catchment of Qualicum Beach, Nanaimo and Comox airports and it is likely that travellers will choose out of town airports for flight travel for financial reasons while travellers on the West Coast will choose Long Beach Airport as they are a more localized hub and the tourism industry can support a dedicated airport. The Alberni Valley and Long Beach airports were designed as sister airports so air traffic that may not be able to land on the West Coast due to weather may opt to land at AVRA and vice versa. This also allows for shared maintenance services between the airports. Currently, AVRA does not record aircraft movements as Long Beach Airport does but anecdotally air traffic is increasing, especially with the increase in glider traffic and aircraft maintenance.

Future plans for AVRA include completing necessary upgrades to the weather station estimated at approximately $106,000, with the majority of funding secured through BCAAP grants. GPS approach upgrades are currently being sent to NAV Canada for review. Once these upgrades are in place, AVRA will be open to service both restricted and non-restricted instrument approaches, similar to Long Beach Airport, and will be more attractive for commercial charter flights. An Airport Advisory Committee has recently been formed and will soon recommend a visionary plan for AVRA.

3.2 Inventory

Costs included in inventory include labour, engineering, financial and administration cost estimates.

Table 3.1 - Assets covered by this Plan

Asset Category	Quantity	2020 Replacement Value
Runway (resurface)	1	1,941,000
Taxiways & Apron (resurface)	4	881,800
Terminal Building & Wastewater	1	95,500
Fencing	3,810 m	105,000
Lighting	1	934,000
Maintenance Equipment	1	265,300
Fuel Tanks & Pump	2	55,200
Water Pipes	350 m	74,300
Water Treatment Equipment	1	5,300
Weather Station	1	106,000
Caretaker Pad & Wastewater	1	31,800
Parking Lot (resurface)	1	25,000
Signage	2	9,400
TOTAL		**4,529,600**

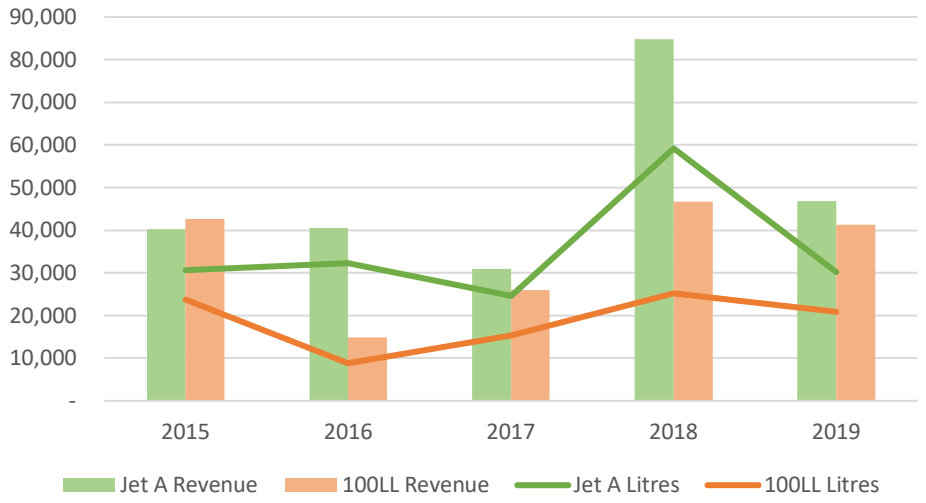
3.3 Obstacle Limitations and the North West Road

Per Transport Canada regulations, AVRA must maintain a clear approach, specifically, *an aeroplane must clear all obstacles along the net take-off flight path by at least 35 feet vertically or by at least 200 feet horizontally within the aerodrome boundaries and 300 feet horizontally outside those boundaries*. This includes rocks, roads and trees. After the runway expansion project in 2016, the North West road encroached on this boundary and was required to be moved. Work continues on this project into 2020 with completion expected in 2020. Once the road lowering project is complete, however, it will not be considered an asset for the purposes of this plan as it lies outside AVRA boundaries. The road is on Crown land and is held as a Statutory Right of Way by Island Timberlands and will be maintained going forward by Island Timberlands.

3.4 Fuel Sales and Traffic

AVRA maintains two double walled pressure fuel tanks for aircrafts or specialized vehicles containing Jet A and 100LL fuel. Aircraft are permitted to land on the runway free of charge to use the fuel pumps. The pressure on the tanks is monitored regularly by the caretaker to ensure that the seals have not been compromised. Fuel sales increased for 2018, totalling over $125,000, a large jump from the average $65,000 in sales from prior years. This was likely due to the increase in wildfire activity in the area and the anchor tenant opting to use the on-site fuel rather than purchasing directly from fuel suppliers. Table 3.2 shows sales for 2019 were on comparable with previous year averages.

Table 3.2 – Fuel Sales - Litres and Revenue



Fuel prices remain similar to that of other smaller airports and aerodromes in the central island region.

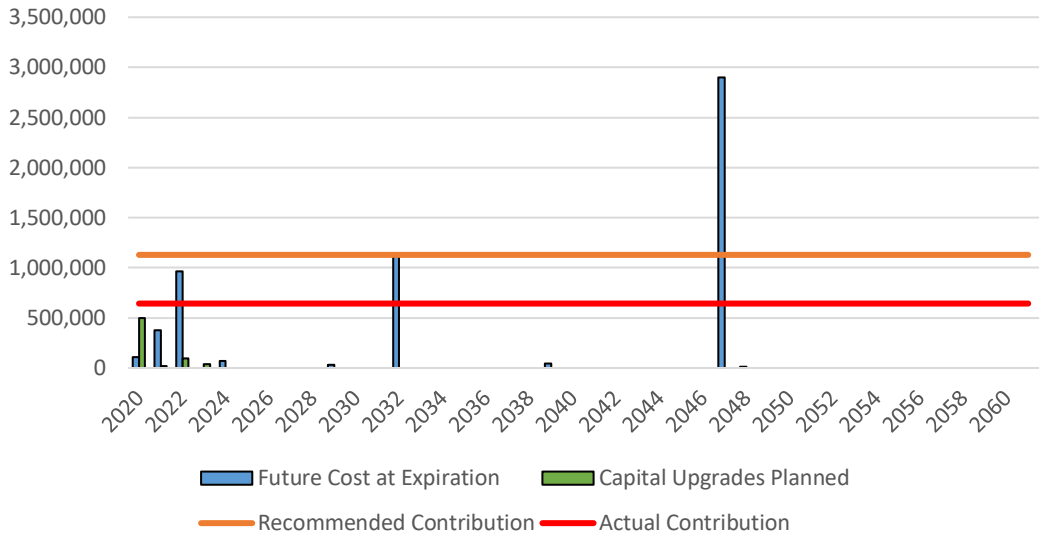
3.5 Replacement Costs and Dates

Asset management changes the financial focus from historical cost and annual amortization included in the ACRD's financial statements to estimated replacement value, estimated service life, and annual capital investment required.

When a surface is deteriorating beyond acceptable levels, the staff will apply for funding to have the surface remediated. Renewals required within the next two years based on asset age make up over $500,000 in replacements. Collecting a residential tax rate of $0.207 will bring reserve balances to an adequate level and fund all required works, however, this amount is almost double the current $0.1177 collected. Currently, only $0.036 of the tax requisition is dedicated towards capital, the remainder covers operational and maintenance expenditures as well as debt repayment associated with operating the Airport. The reserve balance for AVRA has been exhausted with the North West Industrial Road relocation project. If there were no upgrades required and reserve balances were adequate, a residential tax rate of only $0.028 would need to be collected to maintain minimum funding; the present funding gap is due to the required runway upgrades, obstacle limitation clearing and the low requisition amount collected each year. These numbers may not be realistic given the funding availability for airports. The ACRD has successfully applied for and received over $900,000 in grant funding in recent years for critical airport infrastructure. It should be noted that while this is a substantial amount of funding, there is no guarantee that these funding programs will be available in the future or that grant applications will be successful.

A quarter of the AVRA assets are due for replacement, removal or repair within the next five years. Table 3.2 summarizes suggested infrastructure replacement dates and estimated costs by year until 2060. This includes replacement of surfaces such as runways, aprons and taxiways. For the purposes of this Plan, required contributions including and excluding surfaces are both detailed.

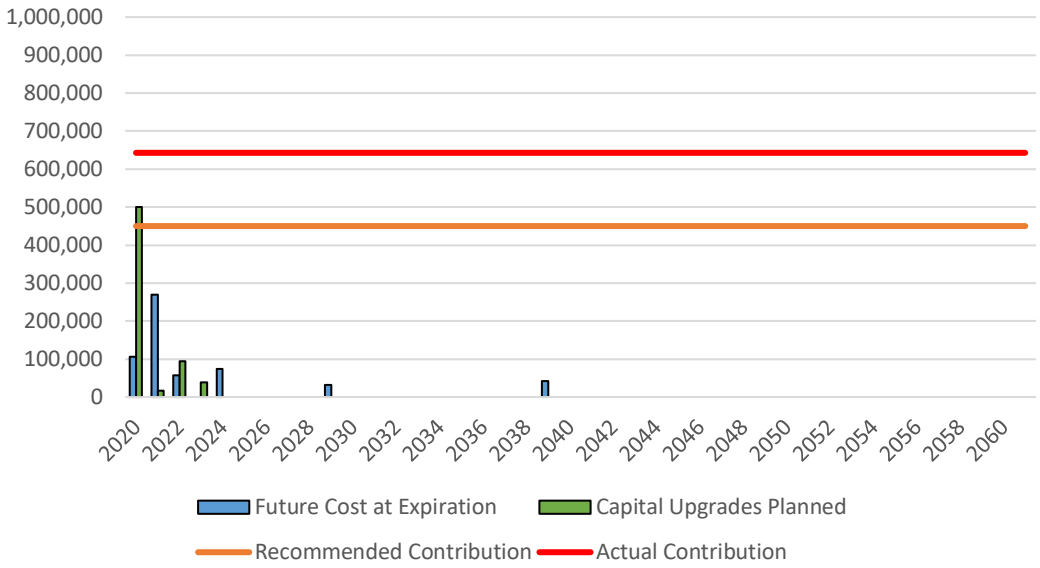
Table 3.2 - Projected Timing for Capital Renewal



It is assumed that grant funding will be available and used to replace runways, aprons and taxiways and that grant applications will be successful. If those assets are omitted from funding requirements, a residential tax rate of $0.082 will be required to bring reserve balances to an adequate level and to fund needed projects. If there were no works required and reserve balance were adequate, a residential tax rate of $0.005 would be needed to maintain minimum funding levels. Table 3.3 summarizes suggested

infrastructure replacement dates and estimated costs for all assets excluding runways, aprons and taxiways.

Table 3.3 – Projected timing for Capital Renewal without Surfaces



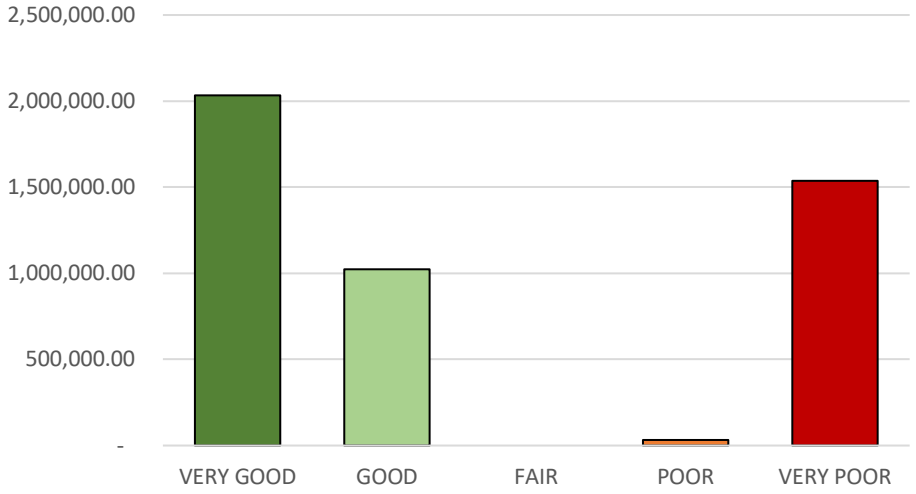
The current tax requisition is not adequate to fully fund the much needed improvements at AVRA and the longer an inadequate tax requisition is collected, the more the funding gap will continue to grow. Reserve balances are fully exhausted and can not be replenished through grant funding. Annual contribution requirements will fluctuate each year depending on projects completed, assets nearing expiry or total requisition. For example, if there were to be no increase in requisition and no projects completed in 2020, the required residential tax rate would continue to grow by another $0.093 by 2021.

3.6 Condition Assessments

Runway inspections are performed approximately 2 to 3 times per month. Daily inspections are not required due to AVRA maintaining registered aerodrome status rather than airport status. Condition assessments are not performed on other components at the airport such as buildings or wastewater infrastructure. Potable water and infrastructure is inspected weekly. In all other ACRD systems, a numerical overall condition assessment rating is given to assets based on their estimated service life remaining and current physical condition. Regular condition assessments on all non-surface assets are part of the improvement works outlined in this Plan. Based on estimated service life and condition assessment, 31% of the AVRA assets assessed are in very poor physical condition. According to the Airport Manager, the airfield surfaces are currently in varying condition with the runway being in good condition and taxiways and aprons being in poor and worsening conditions. Crack sealing will be required in 2020 to maintain required LOS.

Table 3.4 shows the current cost to replace assets based on the percentage of estimated useful service life remaining and physical condition assessment.

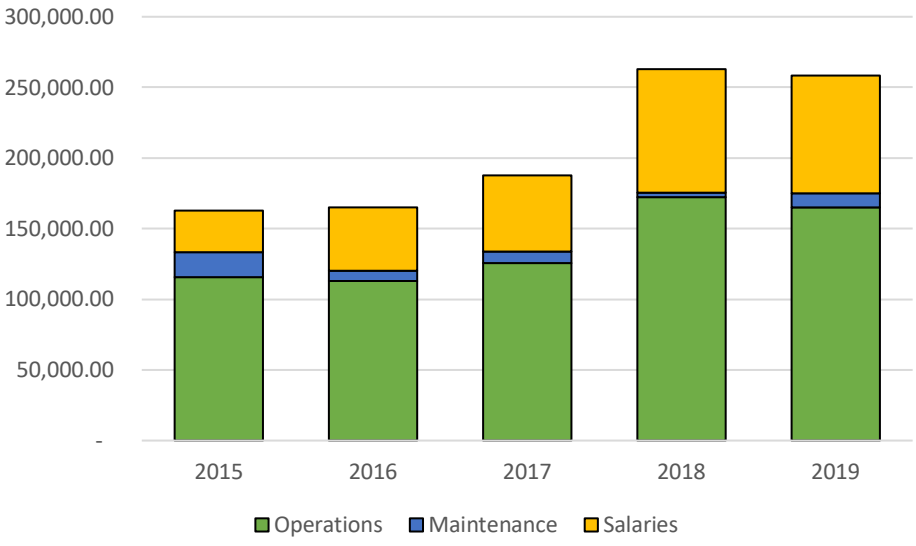
Table 3.4 - Current Replacement Cost by Condition



3.7 Current Operations and Maintenance Costs

A key function of Asset Management is to track maintenance costs separate from operations costs to identify areas that are requiring more repairs as an indication of failing infrastructure. Table 3.5 shows the trend in combined operations and maintenance costs since 2014 for all assets at AVRA.

Table 3.5 – Operations and Maintenance Cost Trends



Average operation and maintenance costs total $207,000 per year, including labour and benefits. AVRA experiences more extreme weather conditions than the Long Beach Airport and therefore experiences higher costs associated with surface maintenance. A maintenance shed is required to store current runway equipment in order to ensure the full expected service life is achieved; presently, the

maintenance equipment totalling a current replacement cost of approximately $370,000 is stored outside near the terminal building and is expected to deteriorate at an accelerated rate due to exposure.

3.8 Risk Management Plan

Risk management is a key objective set out in our Asset Management Policy. With acceptable LOS in mind, we have adopted a risk management framework to assess and rank criticality of the ACRD's infrastructure assets. One of the outcomes of implementing risk management is the ability to prioritize required capital expenditure based on criticality for the AVRA.

The goal in adopting a framework is to have a consistent accurate understanding of the state of the AVRA's infrastructure and associated risks. The framework includes a standardized grading system that is easily repeatable, enables comparison of the status of infrastructure condition over time and across municipalities for comparison.

A risk matrix has been prepared and will be used for risk ratings throughout the ACRD. This matrix will also be used in conjunction with regular condition assessments to properly evaluate new and existing risks.

The risk assessment process identifies credible risks, the likelihood of the risk event occurring and the consequences should the event occur. It also develops a risk rating, evaluates the risk and develops a risk treatment plan for non-acceptable risks. Critical risks are those assessed with "Very High" (requiring immediate corrective action) and "High" (requiring corrective action) risk ratings identified in the assessment process.

According to the Airport Manager, the following are credible elevated risks at this time:

1. Major natural disaster (earthquake, wildfire, etc.) causing damage to critical infrastructure
2. Aircraft incident within airfield involving multiple people and/or pieces of equipment
3. Water or wastewater supply/quality incident relating to water infrastructure
4. Weather event causing prolonged service interruption

4 ASSET MANAGEMENT IMPROVEMENT PLAN

4.1 Infrastructure Replacement Priority Ranking

Table 4.1 lists the components within the AVRA in order of their required estimated replacement. This information can be used to aid in creating a Long-Term Financial Plan (LTFP) for this class of assets.
When budgeting for future projects, it is recommended that a 30% general contingency and a 30% allowance for construction, engineering, financial, legal and admin costs be added to total project costs. It is important to note the volatile prices of construction materials. Many factors can change the costs of materials required for projects and while the actual costs may differ, only the most current and available costs are used.

Table 4.1 – Infrastructure Replacement Priority Ranking

Asset	Current Replacement Cost Estimate	Risk
Weather station	106,000	High
Install required additional fencing	27,800	High
Replacement Cost – High Risk	**$ 133,800**	
Taxiway & Apron replacement	881,800	Moderate
Maintenance equipment storage building	100,000	Moderate
Backup power source for services	100,000	Moderate
Replacement Cost – Moderate Risk	**$ 1,081,800**	
Replace aged fuel tanks & pumps	55,200	Low
Replace aged septic systems	52,000	Low
Replacement Cost – Low Risk	**$ 107,200**	
Total	**$ 1,322,700**	

It should be noted that projects listed above pertain only to assets owned by AVRA that pose a risk to the current operations. This does not include projects that need to be completed in the service that do not affect capital assets.

4.2 Improvement Plan

The tasks identified in the Table 4.2 are required to achieve the AVRA asset management objectives, manage risks, and close the gap between current and targeted levels to achieve within the AMBC Road Map. The table also identifies the integration of these tasks into the organization as recommended by the AMBC Framework.

Table 4.2 – Improvement Plan

Task#	Task	Responsibility	Timeline
1	Begin documented condition assessments on all non-surface assets with a numerical condition rating	Airport Maintenance Staff	Spring 2020
2	Regional asset identification system for specific assets to record expenses at the asset level, when appropriate	Airport Staff, Finance Department	Spring 2020
3	Financial budgets for asset renewal and replacement align with Transport Canada regulations for aerodromes	Airport Manager, Finance Department	Fall 2020
4	Annually review Risk Framework for changes	Airport Manager, Asset Management Coordinator	December 2020
5	Maintain assets to a “certified” airport standards per Transport Canada where possible to mitigate large increases in overall expenditures resulting from potential changes in Levels of Service and regulations	Airport Staff	Ongoing
6	Aging infrastructure is identified and slated for replacement or renewal	Airport Staff	Ongoing
7	Update and monitor asset specific operations and maintenance costs	Asset Management Coordinator	Ongoing
8	Update inventory for additions, disposals and changes in useful life	Airport Staff, Asset Management Coordinator	Ongoing
9	Identification for funding for capital projects	Airport Manager, Asset Management Coordinator where applicable	Ongoing

5 REFERENCES

Asset Management BC

- 2011, “Asset Management for Sustainable Service Delivery: A BC Framework”
- 2011, Roadmap Project: A guide for using the Asset Management BC Road Map, Opus International Consultants Ltd, https://www.assetmanagementbc.ca/wp-content/uploads/Guide_for_using_the_Roadmap-AMBC-Sept_23_2011.pdf]
- 2014, Canadian Infrastructure Report Card “Asset Management Primer”, https://www.assetmanagementbc.ca/wp-content/uploads/Asset_Management_Primer-CIRC-October_2014.pdf

NAMS Canada Certificate Program

- 2006, “International Infrastructure Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM.
- 2008, “NAMS.PLUS Asset Management”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/namsplus.
- 2015, 2nd edition, “Australian Infrastructure Financial Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/AIFMM.
- 2015, 3rd edition, “International Infrastructure Management Manual”, Institute of Public Works Engineering Australasia, Sydney, www.ipwea.org/IIMM.

Transport Canada

- 2010, “Compliance with Regulations and Standards for Engine-Inoperative Obstacle Avoidance”, Government of Canada, https://www.tc.gc.ca/en/services/aviation/reference-centre/advisory-circulars/ac-700-016.html