

Brunswick-Golden Isles (BQK) Airport Pavement Performance Comparison - Concrete versus Asphalt

Introduction

Using the 2007 Pavement Management Report (PMR), prepared by consultant, Applied Pavement Technology, this paper will review the pavement performance of the asphalt and concrete sections on the Brunswick-Golden Isles (BQK) airport. The paper will illustrate that the concrete pavements are far outperforming the asphalt pavements on this airport.

Pavement Area & Description

According to the pavement inventory section of the PMR, the BQK airport has over 3,537,580 square feet of pavement; 56%, or 1,968,335 square feet of the pavement is concrete, 44%, or 1,569,245 square feet is asphalt. All of the **concrete pavements** had a last construction date of **1953** and all of the asphalt pavements had a last construction date of 1993. **The Concrete pavements are FORTY years older than the asphalt pavements and are approaching 56 years in age.** According to Applied Pavement Technology, the concrete pavements are ten (10) inches in thickness (unreinforced) and built upon six inch stabilized base. The typical panel dimensions are 12.5 x 17.5 feet.

Performance

All pavements within the PMR are given a pavement condition index (PCI) rating based upon inspections and distress (types and severities) observation outlined within the report. These ratings help determine allocation of future expenditures for pavement preservation and rehabilitation activities. The pavement performance comparisons are outlined in the table below.

Apron	Pavement Area (Square Feet)	Percent of Area	PCI Weighted Average - Rating
Concrete	1,270,330	100	97 - Excellent
Asphalt	0	0	
Runway 7-25			
Concrete	147,750	12	96 - Excellent
Asphalt	1,060,751	88	70 - Fair
Taxiway A			
Concrete	550,255	52	95 - Excellent
Asphalt	508,494	48	64 - Fair
Totals			
Concrete	1,968,335	56	96.49 - Excellent
Asphalt	1,569,245	44	67.83 - Fair

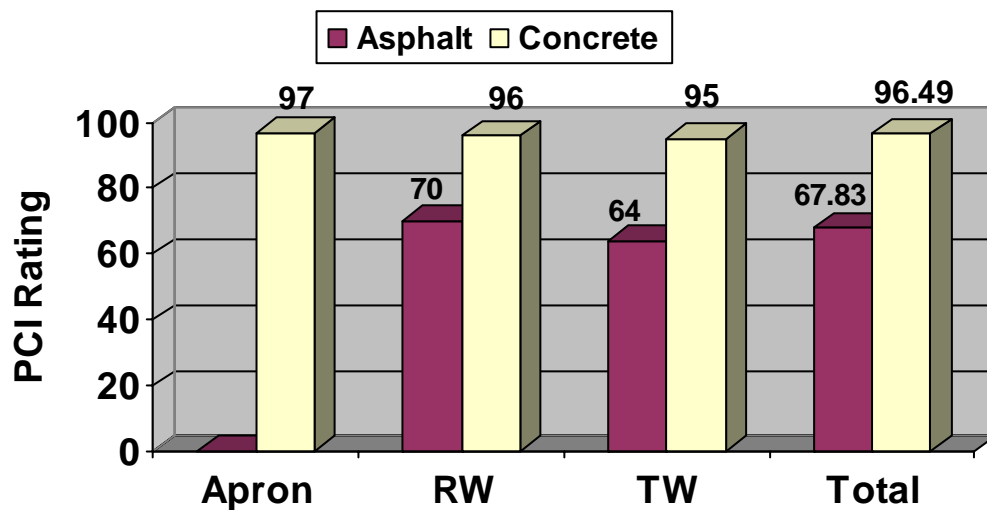
When using a weighted average for all pavement area...the **Concrete pavements have nearly a 30 point HIGHER rating than the asphalt on the airport.** The concrete pavements that were located on the runway touchdown areas had a pavement condition index rating 26 points above the asphalt (middle portion) areas. The concrete pavement located on the airport taxiway had a pavement condition rating 31 points above the asphalt pavements. Whereas the asphalt pavements have approached the need for major rehabilitation; the concrete pavements are still in the category of requiring preservation only techniques.

Generally, the Concrete Sections are in **Excellent Condition and nearly 56 years in age**; meanwhile the asphalt sections – only 16 years in age and in just Fair condition.

Summary

Because of FAA design criteria, concrete pavements are designed very conservatively... meaning they last way beyond the 20 year (funding) grant period. When pavement conditions are compared for similar loading conditions as done for the BQK airport; concrete pavements indeed give the airport owner and funding agencies the best long-term value.

Pavement Condition Comparison



References:

Brunswick-Golden Isles Airport Pavement Management Report. This report was prepared for the Georgia Department of Transportation – Aviation Programs. January 2008.

FAA Airport Master Record, 3/1/2008. The BQK airport has approximately 27,880 annual operations. Majority of these operations are categorized general aviation; but 2430 categorized as air carrier and another 2000 categorized as military.