APPENDIX A

BELLA COOLA AIRPORT PAVEMENT CONDITION REPORT

TETRA TECH

OQM | Organizational Quality Management Program

Pavement Condition Assessment 2016
Bella Coola Airport

PRESENTED TO THE

Central Coast Regional District

OCTOBER 13, 2016
ISSUED FOR REVIEW
FILE: 704-TRN.AIRP03084-01

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LIMITATIONS OF REPORT

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1.0 INTRODUCTION

Tetra Tech conducted a visual pavement evaluation to provide rehabilitation recommendations and Capital Cost Estimates for airside and groundside pavement surfaces at the Bella Coola Airport. The visual inspection was completed over a period of two days on September 28th and 29th, 2016 by Mr. Jack Willms, AScT.

Pavement Condition Inspection summary forms for the survey are included in Appendix A.

Photographs of representative surface defects are included in Appendix B.

Figure 1 showing the Pavement Condition Ratings for the various pavement facilities is included in Appendix C.

Forecast Capital Rehabilitation Costs are included in Appendix D.

Other data reviewed for background information and to aid in providing recommendations for each of the surfaces inspected include:

Report	Author	Year
Pacific Region - Airport Construction History and Pavement Condition	Transport Canada	September 2004
Airfield Pavement Inventory Drawing for Bella Coola Airport	Transport Canada	November 2000
Canada Flight Supplement	Nav Canada	Sept. – Nov. 2016

2.0 PAVEMENT CONDITION ASSESSMENT

2.1 RUNWAY 05-23

2.1.1 Observations

Runway 05-23 includes Plan Code Section 1. The runway in its entirety is observed to be in *GOOD* condition.

The runway was reconstructed in 1996 due to major settlements along several sections of the runway. The runway surface was reclaimed by grinding the asphalt and mixing it with the underlying base gravel layer. The remaining gravel surface was then graded and compacted to gravel runway standards. The work was done during the night and the runway was re-opened each day to allow the scheduled flights to operate on the gravel surface. Over 2,500 cubic metres of logs and organics were removed from beneath the runway surface. Once all of the logs and organics had been removed, the entire runway was re-graded with an additional 15 cm. of new base gravel and then paved with a surface layer of 6.5 cm. of asphalt.

The surface has not been rehabilitated since 1996. Crack filling was completed in 2014 however is minor in extent.

The runway is showing no signs of settlement or structural failure.

Transverse cracking is Minor in extent and Low in severity. The few transverse crack observed were crack-filled and had little secondary cracking.

Longitudinal cracking is Minor in extent and Low in severity. Most Longitudinal cracks were sealed however new cracking has appeared in some locations.

Due to the pavement age, Ravelling is occurring over most of the surface but is Low in severity.

There was no observed Alligator Cracking, Map, Cracking, Block Cracking or Rutting.

2.1.2 Recommendations

Properly maintained, this runway should not require rehabilitation for approximately five years.

To maintain a *GOOD* condition rating it is important that the cracks are filled and sealed on an annual basis. This will reduce the rate of degeneration of the asphalt surface.

The future Runway rehabilitation will likely qualify for 100% funding under the ACAP funding program.

2.2 TAXIWAY A

2.2.1 Observations

Taxiway A is listed as Plan Code Section 2 and is observed to be in *GOOD/FAIR* condition. It was overlayed with a 6.5 cm. asphalt surface layer in 1996 at the same time that the other airside pavements were rehabilitated.

The surface has not been rehabilitated since 1996. Crack filling was completed in 2014 however is minor in extent.

The taxiway is showing a few signs of settlement near the intersection with the runway. There is a puddle and poor drainage due to settlement.

Transverse cracking is Minor in extent and Moderate in severity.

Longitudinal cracking is Minor in extent and Low in severity.

Due to the pavement age, Ravelling is occurring over most of the surface but is Low in severity.

There was no observed Alligator Cracking, Map, Cracking, Block Cracking or Rutting.

2.2.2 Recommendations

Properly maintained, this taxiway should not require rehabilitation for approximately five years.

As with the runway, to maintain a *GOOD/FAIR* condition rating it is important that the cracks are filled and sealed on an annual basis. This will reduce the rate of degeneration of the asphalt surface.

The future Taxiway A rehabilitation will likely qualify for 100% funding under the ACAP funding program.

2.3 TAXIWAY B

2.3.1 Observations

Taxiway B is listed as Plan Code Section 3 and is observed to be in *FAIR* condition. Taxiway B is weight restricted to 12,500 lbs. and therefore is only used by light aircraft. Pacific Coastal Airlines does not use this taxiway for its commercial flights.

The surface has not been rehabilitated since 1996. Taxiway B contains more unfilled cracks when compared with the Runway and Taxiway A.

The taxiway is showing few signs of settlement or structural failure.

Transverse cracking is Minor in extent and Moderate in severity.

Longitudinal cracking is Major in extent and Moderate in severity.

Ravelling is occurring over most of the surface but is Low in severity.

There was no observed Alligator Cracking, Map, Cracking, Block Cracking or Rutting

2.3.2 Recommendations

Properly maintained and because of the low frequency/light aircraft traffic, this taxiway should not require rehabilitation for approximately five years.

To maintain a *FAIR* condition rating it is important that all of the cracks are filled and sealed on an annual basis. This will reduce the rate of degeneration of the asphalt surface.

The future Taxiway B rehabilitation will not qualify for the ACAP funding program as the Taxiway does not service commercial passenger aircraft.

2.4 APRON I

2.4.1 Observations

Apron I is the primary interface between passengers and commercial aircraft at Bella Coola Airport. The Apron includes Plan Code Section 5. Our observations suggest a rating of *GOOD/FAIR*. The apron was overlayed with a 6.5 cm. asphalt layer in 1996 and then sealed with a bitumen seal coat to prevent damage from fuel and hydraulic drips.

Apron I has not been rehabilitated since 1996.

The apron is showing few signs of settlement or structural failure.

Transverse cracking is Minor in extent and Minor in severity.

Longitudinal cracking is Moderate in extent and Medium in severity.

Ravelling is occurring over most of the surface but is Low in severity.

Similarly to Taxiway B, Apron I has more unfilled cracks that also include vegetation growth.

There was no observed Alligator Cracking, Map, Cracking, Block Cracking or Rutting

2.4.2 Recommendations

Properly maintained, this apron should not require rehabilitation for approximately five years.

To maintain a *GOOD/FAIR* condition rating it is important that all of the vegetation is removed and the cracks are filled and sealed on an annual basis. This will reduce the rate of degeneration of the asphalt surface.

The future Apron rehabilitation will likely qualify for 100% funding under the ACAP funding program.

2.5 ITINERANT APRON (WEST SIDE OF APRON AREA)

2.5.1 Observations

The Itinerant Apron is utilized as a tie-down area for itinerant and local light aircraft. The Apron includes Plan Code Section 4. Our observations suggest a rating of *FAIR*. The apron was overlayed with a 6.5 cm. asphalt layer in 1996. This portion of the apron did not receive a seal coat.

The Itinerant Apron has not been rehabilitated since 1996.

The apron is showing few signs of settlement or structural failure.

Transverse cracking is Minor in extent and Minor in severity.

Longitudinal cracking is Moderate in extent and Medium in severity.

Ravelling is occurring over most of the surface but is Low in severity.

Similarly to Taxiway B and Apron I, the itinerant Apron has unfilled cracks that also include vegetation growth.

2.5.2 Recommendations

Properly maintained, this apron should not require rehabilitation for approximately five years.

To maintain a *FAIR* condition rating it is important that all of the vegetation is removed and the cracks are filled and sealed on an annual basis.

The future Itinerant Apron rehabilitation will not qualify for the ACAP funding program as the Apron does not service commercial passenger aircraft.

2.6 AIRCRAFT TIE-DOWN AREA (EAST OF APRON I)

2.6.1 Observations

The Apron Tie-Down area east of Apron I was overlayed with asphalt in 1996. The overlay was completed without reconstructing the underlying areas and has now failed due to settlement of the subgrade. It appears the subgrade included organics and wooden stumps which have since rotted. The area is closed to aircraft traffic and marked as a hazard with plastic cones. The area is rated as *VERY POOR*.

2.6.2 Recommendations

There are no immediate recommendations for the Tie-Down Area than it will require reconstruction to be made useable again.

The future Tie-Down rehabilitation will not qualify for the ACAP funding program as the area does not service commercial passenger aircraft.

2.7 GROUNDSIDE ROADS AND PARKING LOTS

2.7.1 Observations

We have found no records of the last rehabilitation or construction of the groundside roads and parking lots. It appears they have been chip sealed at some point in recent history.

The Terminal Approach Road/Frontage Road/Exit Road are all in *POOR* condition due to age, ravelling, cracking and pot holes.

The paved Parking Lot adjacent the Terminal Approach Road appears to be in the same condition as the roads and is rated as *POOR*.

The gravel Parking Lot west of the paved lot is rated *POOR* due to pot holes and lack of drainage.

2.7.2 Recommendations

The Groundside Roads and Paved Parking Lot should be overlayed with a new asphalt surface as soon as possible. If overlay is not feasible at this time, pot holes should be patched with asphalt until such time that the areas can be paved.

The Gravel Parking area should have enough new gravel added to allow drainage to be effective.

3.0 CAPITAL COST FORECAST SUMMARY

Please refer to Appendix D for a breakdown of recommended capital rehabilitation costs for years 2017 and 2021.

APPENDIX A

PAVEMENT CONDITION SURVEY INSPECTION FORM

Figure 2: Pavement Condition Ratings Summary

PAVEMENT CONDITION SURVEY
RATINGS SUMMARY

AIRPORT: BELLA COOLA
INSPECTOR: JACK WILLMS
DATE: SEPT. 28/29, 2016

FACILITY	SECTION ID. NO.	AREA (m^2)	Structural Condition Rating	√ Program Restoration	√ Maintenance Req'd	PAVEMENT SURFACE DEFECTS — ASPHALT SURFACES: Transverse Cracking	Longitudinal Cracking	Alligator Cracking	Map Cracking	Block Cracking	Ravelling	Rutting	VEGETATION	SETTLEMENT	CONCRETE S: Panel Cracking	Corner Cracking	Edge Cracking	Scaling / Spalling
RW4 05-23	1	38.4 K	7		✓	1 L	1 L	0 0	0 0	0 0	3 L	0 0	1 L					
TW4 A	2	1.5 K	6		✓	1 L	1 L	0 0	0 0	0 0	3 L	0 0	0 0	1 M				
TW4 B	3	3.5 K	5		✓	1 M	3 M	0 0	0 0	0 0	3 L	0 0	3 M	1 M				
APRON 1	5	2.7 K	6		✓	1 L	2 L	0 0	0 0	0 0	3 L	0 0	3 M					
ITINERANT APRON	4	6.4 K	5		✓	1 M	3 M	0 0	0 0	0 0	3 L	0 0	3 M	1 L				
AIRCRAFT TIE DOWN	6	1.1 K	1			3 H	3 H	0 0	0 0	0 0	3 L	0 0	3 M	3 H	CLOSED			
GROUNDSIDE ROADS	7	1.9 K	3		✓	3 M	3 M	3 M	2 M	0 0	3 M	0 0		3 M				
PAVED PARKING	8	1.2 K	3		✓	3 M	3 M	3 M	3 M	0 0	3 M	0 0		3 M				
GRAVEL PARKING	9	1.5 K	DOES		✓	NOT	TOUCH											

Critical Aircraft: Name: BEECH 1900
Operating Weight (kN): _____
Tire Pressure (MPa): _____
Aircraft Load Rating (ALR): _____

PAVEMENT DEFECT RATINGS
1: Minor
2: Moderate
3: Major
4: Extreme
Extent of Defect / Severity of Defect
L: Low
M: Medium
H: High

GENERAL CONDITI
10 9 8 7 6 5 4
Very Good Good Fair

APPENDIX B

PHOTOGRAPHS

Photo 1: Low Severity Longitudinal Cracking near the Threshold or Rwy 05

Photo 2: Low Severity Longitudinal Cracking near the Threshold or Rwy 05

Photo 3: Threshold of Runway 05

Photo 4: Threshold of Runway 05

Photo 5: Low Severity
Longitudinal Cracking

Photo 6: Low Severity
Longitudinal Cracking
Requiring Crack Sealant

Photo 7: Vegetation Growth to be Removed

Photo 8: Transverse and Longitudinal Cracking (Sealed)

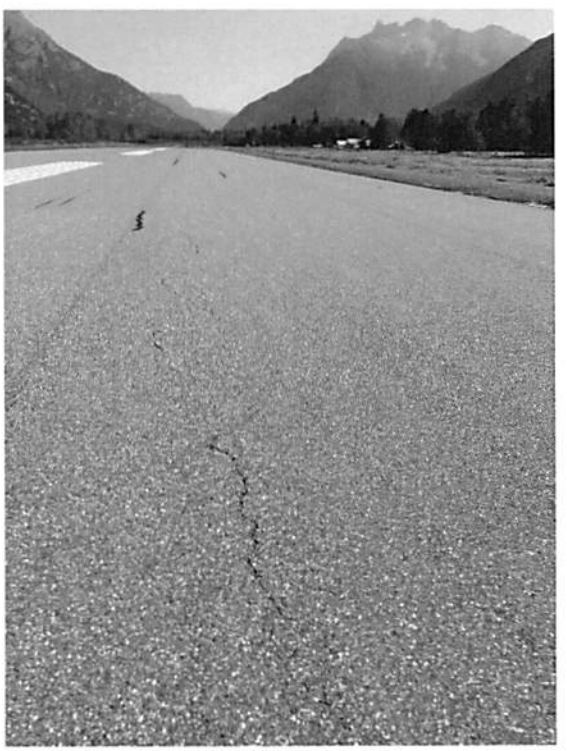


Photo 9: Low Severity un-sealed Longitudinal Cracking

Photo 10: Transverse Crack Requiring Re-Sealing

Photo 11: Sealed Transverse Crack

Photo 12: Beautiful View eh?

Photo 13: Threshold of Runway 23

Photo 14: Displaced Threshold for Runway 23

Photo 15: Displaced Threshold for Runway 23

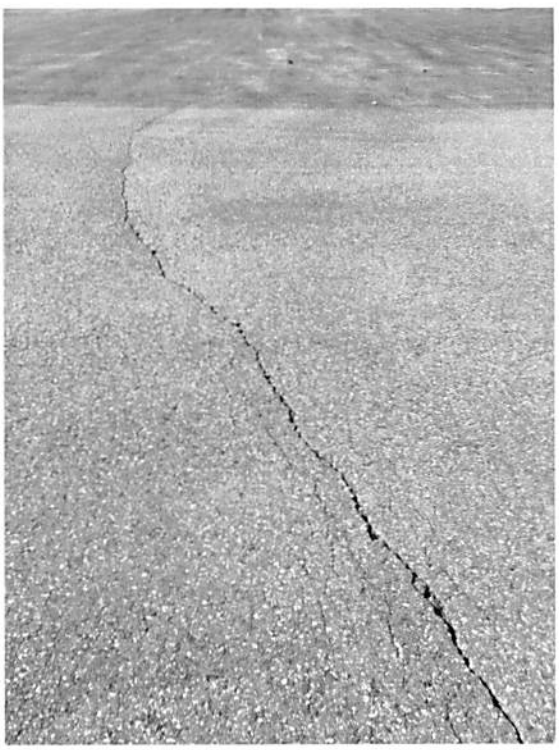


Photo 16: Low Severity Crack Apron I

Photo 17: Nice View at the Threshold of Runway 23

Photo 18: Low Severity Cracking on Apron I

Photo 19: Vegetation Removal and Crack Seal Required on Apron I

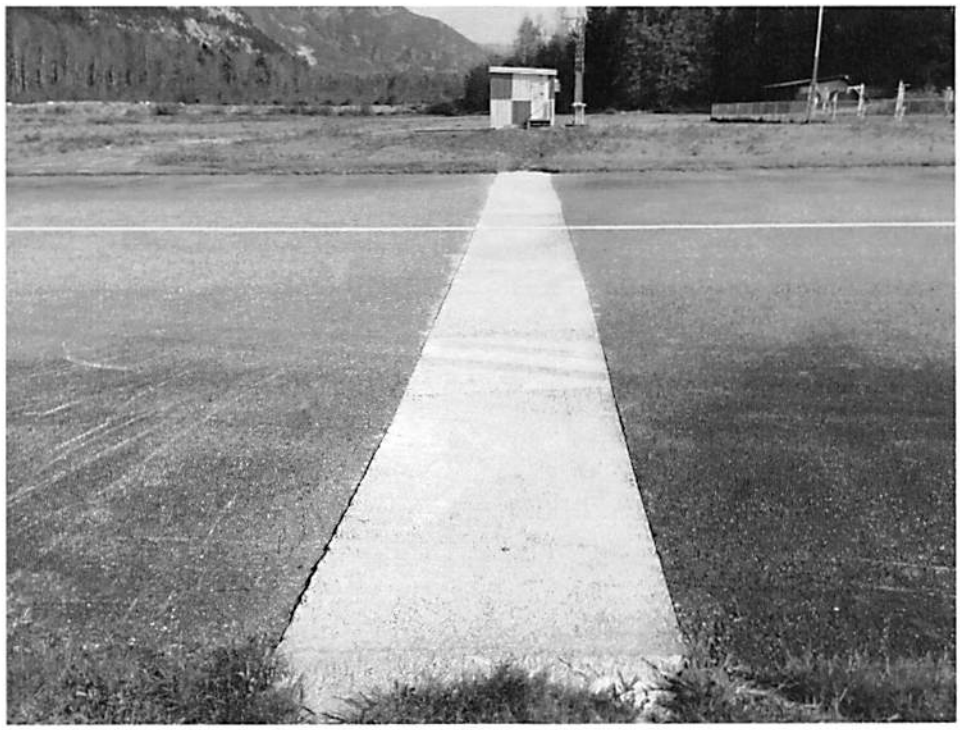
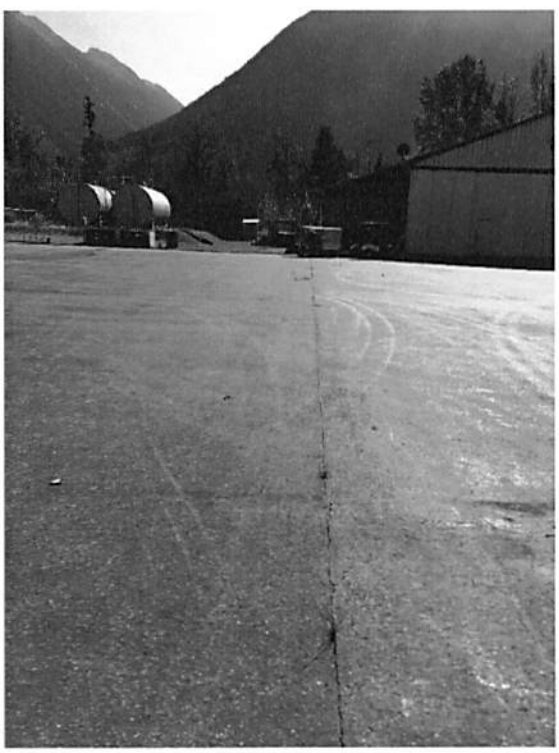


Photo 20: Trench Patching Across Taxiway A

Photo 21: Transverse Crack on Taxiway A

Photo 22: Hold Line at Taxiway A

Photo 23: Apron Helicopter Touchdown Pad on Apron I



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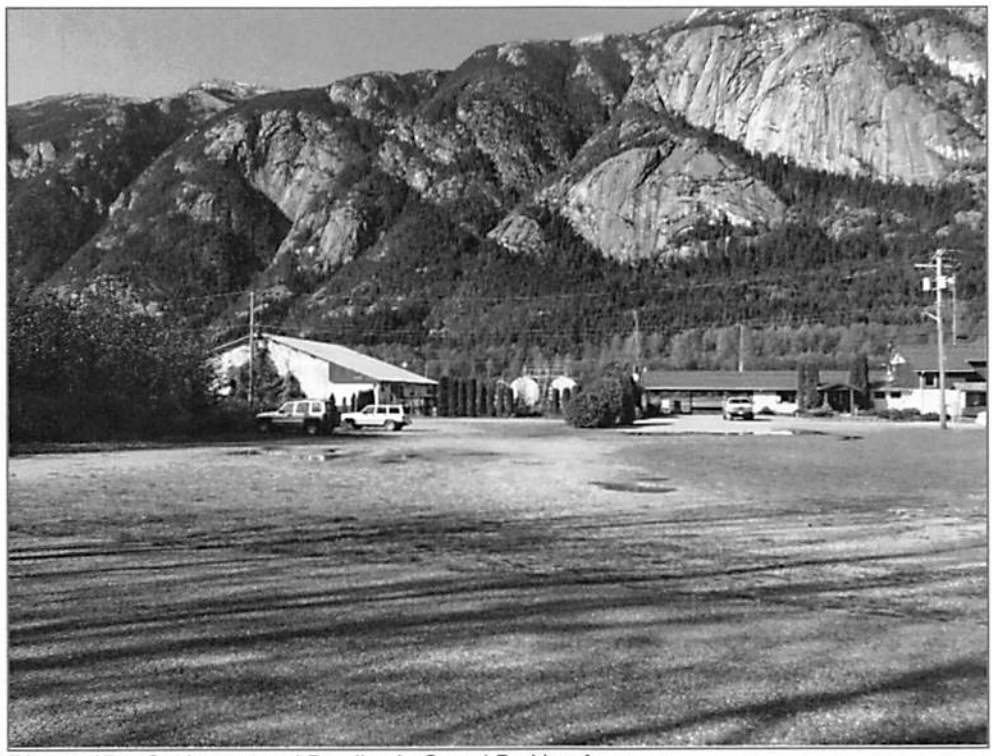

Photo 45: Settlement and Ponding in Gravel Parking Area

Photo 46: Settlement and Ponding in Gravel Parking Area

APPENDIX C

PAVEMENT CONDITION SURVEY DRAWING