International Civil Aviation Organization

The Fifth Meeting of the Asia/Pacific Aerodrome Design and Operations Task Force (AP-ADO/TF/5)

Chiang Rai, Thailand, 30 January – 2 February 2024

Agenda Item 6: Airport Innovation

SUSTAINABLE AIRPORT PAVEMENT MANAGEMENT

(Presented by the Republic of Korea)

SUMMARY

The purpose of this paper is to share sustainable airport pavement management practices for strengthening runway safety and to find out best practices by other States / Administrations in Asia-Pacific Region.

1. INTRODUCTION

1.1 The performance of the runway surface is critical to the safe operation of aircraft.

1.2 Normally when paving the runway six meters at a time, cold joints are generated in between. In particular, damages to the pavement such as ravelling, longitudinal cracks, or wear occur over time on cold joints in the center of the runway which is intensively affected by aircraft loads.

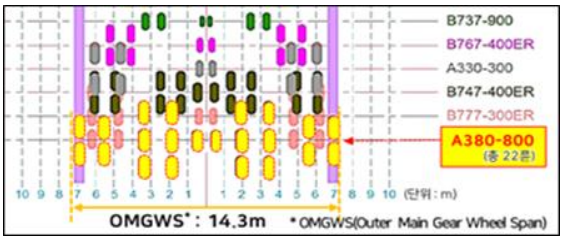
1.3 Degradation of pavement quality or FOD (Foreign Object Debris) generation from those damages may have significant effects on the safety of aircraft operations that is the top priority in the aviation.

1.4 To tackle this issue, the Republic of Korea is implementing the sustainable airport pavement management for strengthening runway safety (RE: Runway Excursion) in line with Global Aviation Safety Plan (GASP) with airport operators.

2. DISCUSSION

Echelon pavement

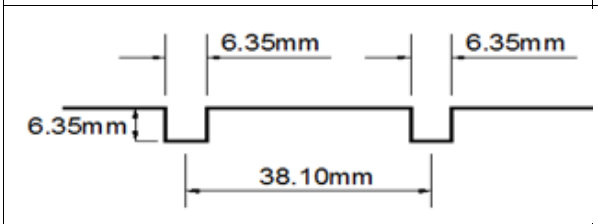
2.1 Echelon pavement means a V-shaped wide-width formation pavement method, covering 24m[note] in the center of the runway under intensive aircraft load at once without cold joints using a wide-width finisher (12m) and 2 normal-width finishers (6m).

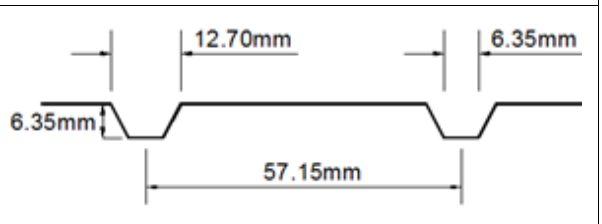


The largest OMGWS figure:
A380-800 Outer Main Gear Wheel Span 14.3m

Trapezoid groove

2.2 Both safety and economic feasibility were secured by improving the drainage capacity (9%), friction performance (20%), and pavement durability (25%) of the runway through trapezoidal grooving considering climate change and sustainability.

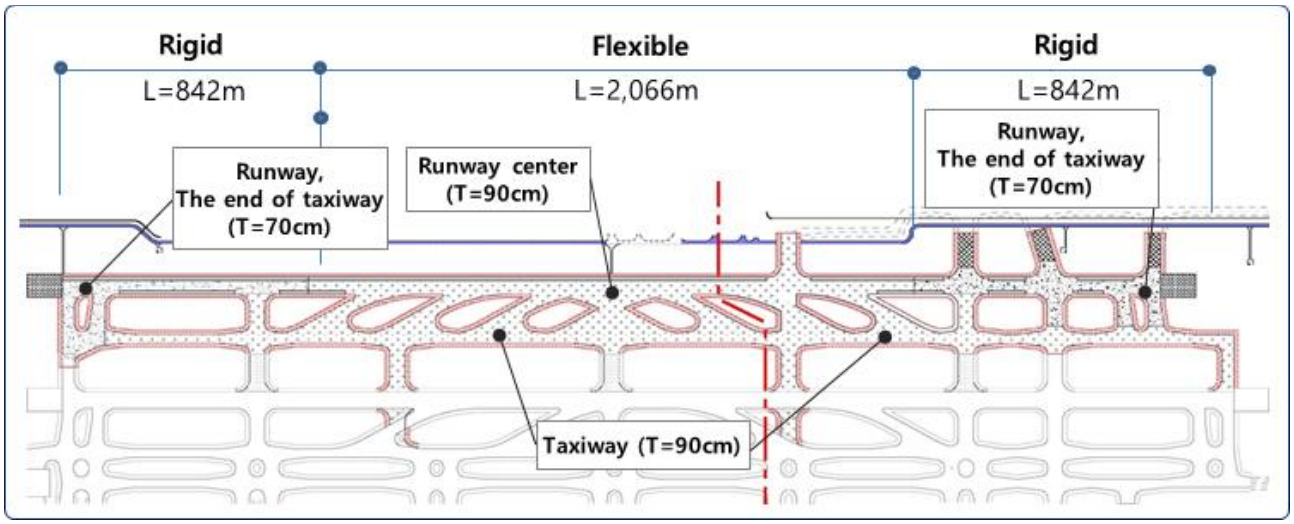




Note- A380 OMGWS 14.3≒15m + 9m (Lateral deviation tolerance width, 4.5m*2) = 24m

Extension of rigid pavement

2.3 By expanding the rigid pavement section to 842 m based on the results of the aircraft landing analysis, the Republic of Korea could ensure that the majority of aircraft touch-down on the rigid pavement runway, minimizing damage to the rigid and flexible pavement joints, increasing the efficiency of airport operations and improving the ride quality of airport customers.



2.4 In conclusion, the Republic of Korea strives to offer safer and more comfortable airport services on an international scale through the enhancement of runway pavement quality, catering to the needs of a diverse range of global customers.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) note the information contained in this paper;

b) share airport pavement management best practices for strengthening runway safety by other States / Administrations in Asia-Pacific Region; and

c) discuss any relevant matters as appropriate.

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