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THIRTEENTH AIR NAVIGATION CONFERENCE

Montréal, Canada, 9 to 19 October 2018

COMMITTEE A

Agenda Item 1: Air navigation global strategy

1.1: Vision and overview of the sixth edition of the GANP

THE UNITED STATES NAS HORIZONS REPORT

(Presented by the United States)

EXECUTIVE SUMMARY

This paper provides an overview and informs the Conference of the publication of the United States NAS Horizons document which is a continuous strategic scan of the horizon for trends and concepts that could shape the long-term future of aerospace.

1. INTRODUCTION

1.1 The United States is modernising its national air transportation system (NAS) through the development and implementation of interconnected air traffic management (ATM) systems called NextGen. Through NextGen, the Federal Aviation Administration (FAA) is developing new capabilities, introducing new enabling technologies and operational procedures. Specifically, these modernisation efforts are enabling a move from a ground-based ATM system, using radar and voice communications, to an integrated air-ground aviation and ATM system using satellite-based navigation and digital data communications.

1.2 As these technologies and procedures are now being implemented, the FAA with its aviation research partner the National Aeronautics and Space Administration (NASA) agreed to look forward to the 2045 timeframe to determine the range of potential future aerospace environments. This is a continuation of our process we first used to define NextGen in 2002.

1.3 NAS Horizons was developed using the best practices of other United States federal agencies and published industry methods for long-term strategic planning. NAS Horizons identifies a range of potential future environments based on published research, published outlooks, government expert interviews, future world scenario workshops, and interviews with experts from traditional aerospace, as well as potentially disruptive private industries.

2. DISCUSSION

2.1 The NAS Horizons document develops a strategic watch list of technologies, concepts, and strategies as they might be derived from potential future world environments focused towards the year 2045 and beyond. In looking at the future insights, opportunities, and challenges for the aerospace community, the FAA finds the operational environment is aligned with the conceptual roadmap outlined in the latest ICAO *Global Air Navigation Plan* (GANP, Doc 9750). With the operational environment envisaged, the question of what technologies will be developed and available to support the vision of 2045 and beyond.

2.2 A key component of this initiative was the Strategy Offsite Workshop. The workshop involved the personal engagement of over fifty senior leaders from the FAA, NASA, and key interagency partners in a long-term strategy discussion. Leveraging the knowledge and expertise of the participants. This allowed participants to assess future NAS user requirements in four distinctive future world scenarios. The results from these future world teams, combined with the results from research and interviews, ultimately resulted in strategic interest areas.

2.3 The NAS Horizons Team analysed all the information amassed during the research, interviews, and strategy offsite portions of this project and developed a watch list of strategic interest areas that the team is recommending to the aerospace community. The results of this analysis are presented in this document for each of the strategic interest areas.

2.4 The NAS Horizons report is categorized into seven strategic interest areas:

- a) NAS Infrastructure
- b) Smart Systems
- c) Certification and Regulation
- d) NAS Operational Information Exchange
- e) Cybersecurity
- f) Space Operations
- g) Workforce

2.4.1 Each of these subject areas was further characterized into three possible future environments distinguished by incremental change, moderate transitional change, and all out transformational change.

2.5 NAS Horizons provides aerospace leaders with a broader view to inform and balance the day-to-day, tactical decision-making with strategic insight. It connects and provides insight to specific government and industry planning efforts already underway to plan for the five-fifteen year future. These connections are already taking place and will be the basis for a mutually supportive strategic environment.

3. CONCLUSION

3.1 The insights of the NAS Horizons document have a global applicability as they are based on published literature, future world scenario workshops, and interviews with experts in government, traditional aerospace and potentially disruptive private industries. This is further emphasized by the fact that the team utilized analysis and predictions which identified a range of potential future environments, instead of a single future for each strategic area.

3.2 This initial NAS Horizons report is the result of many years of dedicated effort, persistence, and vision from a wide range of aerospace community leaders. Nevertheless, in long-term strategic planning, there is never an end to the process. Future trends change, assumptions are proven imperfect or false, and unforeseen outside forces might disrupt the very essence of how we understand the aerospace environment. In order to ensure continued strategic significance, it is essential that the United States and international community continues to work together to deepen the vital relationships that help influence and modernize the global aerospace systems.

3.3 The United States invites you to review the report at www.faa.gov.

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