RESPONSE TO EMERGING AVIATION TECHNOLOGIES PAPER

30th October, 2020

EmbraerX would like to thank the Department of Infrastructure, Transport, Regional Development and Cities (DITRDC) for the opportunity to respond to the Emerging Aviation Technologies Policy paper. This important milestone will strengthen government-industry collaboration as policy evolves. We have reviewed the paper and have provided a brief summary of our responses. The following is a list of the most paramount issues and suggestions for DITRDC.

1. **Consider renaming the term, "Unmanned Traffic Management."** The term, "Unmanned Traffic Management" implies a focus on Unmanned Aircraft Systems (UAS). We believe Unmanned Traffic Management is an inappropriate term for a system that will also manage eVTOLs given that eVTOLs will likely start operations with a pilot on board. These pilots will need to interact with an information system that supports manned and unmanned aircraft. We suggest that the term, "Unified" or "Integrated" Traffic Management be used instead. This will ensure consistency with the government's approach to the Integrated Airspace System (IAS) (p. 19).

2. **Consider explicitly acknowledging the significant differences between eVTOLs and drones.** Although there is a short section that discusses the unique characteristics and needs of electric vertical take-off and landing vehicles (eVTOLs), in much of the paper, it frequently mentions drones and eVTOLs together, as if they are in the same aircraft category. This implies that drones and eVTOLs are, in essence, the same type of aircraft. eVTOL and drone operations will differ significantly.

   Urban Air Mobility (UAM) vehicles (mainly eVTOLs) will:

   - Start operations as manned, piloted aircraft utilising voice communications. Traffic management systems focused on unmanned systems will be inappropriate for managing these types of operations.
   - Be electric or hybrid vehicles with operating profiles that are different to helicopters today;
   - Have different missions (passenger transport and cargo);
   - Likely be integrated with a multi-modal transportation system;
   - Share airspace with general aviation and other aircraft, particularly in and near controlled airspace;
   - Operate at a high frequency and high density over built-up areas;
   - Have unique infrastructure needs (e.g., vertiports, battery needs, reliable electrical supply, high-speed CNS data and, potentially new airspace structures and procedures); and
   - Have a higher magnitude of risk than small drones since UAM vehicles will carry passengers over densely populated areas.

   While some UTM services may be applicable to UAM operations, these differences will require unique traffic management services and infrastructure. In addition, we believe specific services will be required to support the growth of UAM and ensure that UAM operations remain safe, efficient and environmentally responsible.

Future Policy should recognize the differences between UAM and drone traffic management. We suggest the Policy include details to describe the government's approach to ensuring the creation of the unique infrastructure (including traffic management systems) that will foster the growth of UAM.

3. **Consider addressing the near-term traffic management requirements for UAM.** To ensure the urban airspace environment remains safe and efficient, EmbraerX suggests that discussions about evolution in the market should extend beyond autonomy and aircraft capabilities. These discussions should also consider potential challenges to infrastructure needs, the broader transportation system, opportunities for regional mobility, future CNS requirements (and gaps), airspace infrastructure, and regulatory challenges.

4. **Provide overview on the assumptions and articulate benefits.** EmbraerX suggests that the Policy include discussion about the assumptions that are at its foundation. We also believe that the Policy is an opportunity to further detail the economic, social and environment benefits of drones and UAM. For example, eVTOLs can improve accessibility of regional and remote areas for people and goods, introduce a zero-emission mode of transportation, and improve the flexibility of urban transportation networks. Furthermore, the growth of the UAM industry can introduce new:

    - jobs to support passenger transit, cargo movement, and vehicle maintenance;
    - workforce development opportunities;
    - businesses; and
    - segments to the aviation industry.

5. **Address the legal and regulatory challenges to autonomous operations.** Current legislation does not allow for UTM to manage piloted aircraft and, as such, unless regulations change, UAM vehicles must have a pilot on board for the foreseeable future. EmbraerX suggests that the Department work with CASA and the broader government to develop a roadmap towards the safe removal of the pilot from the flight deck of UAM vehicles and the introduction of autonomous passenger-carrying aircraft. The industry requires guidance on the types of information that will be required to support the safety case for removing the on-board pilot and the methodology for an acceptable means of compliance.

EmbraerX appreciates the opportunity to comment on the issues paper and welcomes further discussions about these suggestions. Any questions may be sent to David Rottblatt, VP of Business Development