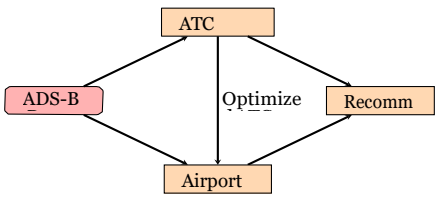
Grant Deliverables and Reporting Requirements for UTC Grants (November 2016)

**EXHIBIT F**

| **UTC Project Information** | |
|---|---|
| Project Title | Multi-scale and Collaborative Disaster Evacuation Planning Framework |
| University | Embry-Riddle Aeronautical University |
| Principal Investigator | Dahai Liu, Co-PI: Houbing Song |
| PI Contact Information | Dahai.liu@erau.edu, 1 Aerospace Blvd., Daytona Beach, FL 32114, 386-226-6214 |
| Funding Source(s) and Amounts Provided (by each agency or organization) | DOT/CATM/ERAU cost share<br>$99,999+$50,001(cost share) |
| Total Project Cost | $150,000 |
| Agency ID or Contract Number | 69A3551747125 |
| Start and End Dates | 02/01/2020-05/15/2021 |
| Brief Description of Research Project | When emergency occurs, no tools are available to assist the decision-making of airline planning and coordination. In this project, we use big data and multi-agent modeling to integrate ADS-B data and Weather information, to optimize and visualize the airspace strategic planning during disaster, and develop a forecast and recommendation system to aid the authorities and public for optimal airline evacuation process, by using the deep reinforcement learning technique. |
| Describe Implementation of Research Outcomes (or why Not implemented)<br><br>Place Any Photos Here | Evacuation planning framework that can provide<br>1) Prediction of the emergency on the local airport capacity<br>2) Estimation of optimal capacity of the local airport for more efficient planning<br>  |

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| Impacts/Benefits of Implementation (actual, not anticipated) | Major impact:<br>The Public: A mobile assistance could provide personalized evacuation guidelines including the best timing, route and mode of transportation for them to leave.<br>Airports and Airlines: Accurate pre-alerts can allow airports and airlines to have to more time to coordinate flights.<br>Authorities: Authorities can discover the bottleneck of transportation systems under extreme situations. |
| Web Links<br>• Reports<br>• Project Website | |