The Air Traffic Control/Technical Operations (ATC/TO) Human Factors program focuses on the integration of human considerations into operations and the system acquisition process to enhance user-system design, reduce life cycle ownership costs, improve safety, and optimize total system performance.

**Human Performance (HP) and Safety**
- Incident Investigation and Mitigations
  - Investigation of SoCal TRACON near miss incident to identify HP contributing and causal factors and development of human factors recommendations
  - Investigation of Honolulu Control Facility head-on near miss incident and development of human factors recommendations
- Operational Human Performance – Safety Support For ATO Top 5 Hazards
  - Analysis of combined sectors / positions to identify contributing factors and impacts on controller performance
  - Development of Corrective Action Program materials for controllers on the use of memory aids
- Service Integrity Risk Analysis Process (SI-RAP)
  - Development of human factors – safety taxonomy for technical operations incidents
  - Development of process for identification of SI-RAP Top 5 Risk Priorities similar to Airborne RAP

**Training and Facility Assignment**
- Completed and terminated research in the area of ATC personnel selection. Reports and presentations documenting 7 of those projects were completed this year.
- Provided data-driven recommendations to human resource executives and contractors about interpretation of historical selection and outcome data that were the basis of their decisions about modifying the ATCS selection process.
- Conducted an analysis of attrition rates for New York TRACON trainees to determine how to increase the pass rate
- Developed a job analysis information database documenting analyses of both current and NextGen occupations for controllers and maintenance technicians for use by training developers, training researchers, and training requirement specialists.

**Human Centered Design**
- **Integrated Arrival-Departure Control Services (IADCS) Simulation.** Human-in-the-loop study compared options for en route and terminal controllers responding to airspace closures due to weather.
- **Time-Based Flow Management (TBFM) Simulation.** This study examined the effects of increasing numbers of metered traffic streams on operational and controller performance.
- **Traffic Flow Management User Interface Development.** Researchers developed and evaluated user interfaces for multiple traffic management automation systems and tools. These included the Route Availability and Planning Tool (RAPT) and Airborne Rerouting.
- **Data Communications User Interface Validation.** Simulated user interfaces for Data Communications on an En Route Automation Modernization (ERAM) emulation system in an operational evaluation.

**Human Factors in Acquisition**
- Chartered the Human Factors Acquisition Working Group to initiates changes or develops new human factors function policy or guidance for the Acquisition Management System (AMS).
- Completed 5 new Human Factors Standards for use during system acquisition and development in air traffic and technical operations systems.